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COMPUTERWORLD

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AS/400 poses dilemma

Some System/36 users uneasy at forced migration

BY STANLEY GIBSON
CW STAFF

For the majority of IBM System/36 users, will the recently announced AS/400 represent a pilgrimage to the promised land or a forced resettlement?

The rollout of the AS/400 may have been one of the most spectacular that IBM has ever staged. But in the process, the writing was put on the wall for the eventual demise of the System/36. Users staying with the System/36 face a stagnant operating system, questions about future application software enhancements and possible maintenance price increases.

Their choice is to purchase a new CPU, the AS/400, and its new operating system, OS/400. Their application software will have to be ported, although IBM has apparently tried to ease likely software migration snags.

Large firms, many with several System/36s, have generally decided which way to go. Ryder System, Inc., for example, worked closely with IBM prior to the announcement of the AS/400 to carry over its applications to the system. But many smaller users may take years to move.

"Unless they are maxed out on their System/36, the opinion we are getting is that the users see no reason to change," said Wayne Prather, publisher of

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The bottom line

Cost comparisons for upgrading an IBM System/36 Model 5362

Upgrade options	CPU	Operating system	Disk	Conversion
Used 5360 D24	$31,200[1]	$0	400M-byte disk included	$0
New AS/400 B20	$33,500	$10,500	630M-byte disk included	$500 to $2,000[2]

[1] International Data Corp. estimate
[2] K&C Systems, Inc. estimate

CW CHART

Microsoft acts to set OS/2 price ceiling

BY STEPHEN JONES
CW STAFF

A Microsoft Corp. official said last week that the company will not raise prices on applications software that it reworks for the OS/2 Presentation Manager environment, a move that could break the industry's stalemate on announcing pricing plans for the next-generation PC operating system.

"We don't see any reason why there has to be a big price difference for Presentation Manager applications," commented Jeff Raikes, Microsoft's director of applications software. "We have no intention of changing prices," even if the software requires extensive reworking to run under the graphical environment.

Microsoft's statement may force an end to the waiting game software developers have been playing on pricing schemes; developers have shown reluctance to tip their hands too early for fear they will be outdone by competitors with better follow-up prices.

Neither Lotus Development Corp. nor Ashton-Tate Corp. has stated pricing plans for versions of their existing products that will run under the Presentation Manager, which is scheduled to ship next month. Both are expected to announce some price increases.

Tight-lipped

By holding the line on OS/2 pricing, Microsoft could block other developers from making the unpopular decision to raise prices. But the other two leading microcomputer software companies are not talking yet.

Ashton-Tate is expected to raise the stakes for its upcoming Dbase package for Presentation Manager. Ed Esber, Ashton-

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Computer Associates covets MSA

BY CLINTON WILDER
CW STAFF

Management Science America, Inc. headed into the Independence Day weekend nervously anticipating the next move in Computer Associates International, Inc.'s attempt to acquire the mainframe applications stalwart.

Atlanta-based MSA last week rejected Computer Associates' cash offer of $191 million, or $11.50 per share. But the acquisition-minded software giant said it is still interested in buying MSA.

"The next move is ours," said Computer Associates Senior Vice-President Michael Fisher. But Fisher hinted that the Garden City, N.Y.-based firm will not attempt a tender offer to MSA shareholders in defiance of the MSA board of directors, which controls 24% of MSA stock.

That's not nice

"That smacks of being unfriendly, and unfriendly acquisitions are not successful in software," Fisher said. "Our alternatives are many and varied. We could just walk away, but we prefer not to do that."

The surprise offer came just 13 months after Computer Associates announced its intent to buy Uccel Corp. for $780 million, a move that consolidated two of the largest players in IBM mainframe systems software and helped propel Computer As-

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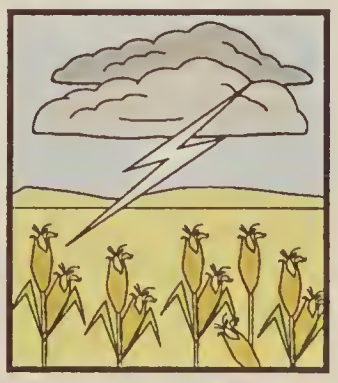
Systems come up dry

BY J. A. SAVAGE
CW STAFF

WASHINGTON, D.C. — While the Willard Scotts of the nation take shots at predicting how long the Midwest drought will last, long-range forecasting — that is, beyond next week — remains mostly an inexact computer science.



National Weather Service meteorologists, despite their access to supercomputers, said recently that they do not have enough technology for accurate long-range predictions. But others said they have developed long-range forecasting programs, based on the cyclical nature of weather, that run on personal computers.

"Computer input is dominant in short-term forecasting," said Don Gilman, chief of the weather service's prediction branch. Data from a twice-daily release of weather balloons is entered into the service's two Control Data Corp. Cyber 205 supercomputers.

For anything longer than a week's forecast, the resulting charts are examined by forecasters, and average temperatures, as well as other variables, are projected into the forecast by humans.

"Seasonal forecasts use computers in a trivial way. There is no model appropriate for it," Gilman said. Thus, the official government prediction of whether the drought bumps into the rainy season is left to forecasters who use computers only for data processing and batch calculations.

A band of renegade meteo-

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NEWSPAPER

SECOND CLASS MAIL

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"It's like Coke asking Pepsi for royalties because Pepsi came out with a diet cola, too. RISC is like the reduced calories in a soft drink — it's just a concept."

BRAD SMITH
DATAQUEST, INC.

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Agenda late bloomer

Puzzling interface postpones program's arrival

BY DOUGLAS BARNEY
CW STAFF

CAMBRIDGE, Mass. — Oops. Agenda is going to be just a wee bit late. Like two weeks.

The groundbreaking information manager from Lotus Development Corp. was supposed to ship this past spring. Then it was supposed to come out by the end of the second quarter, which happened last week. But there's still no Agenda.

Technically, the $395 Agenda will still meet its original spring ship date. But instead of shipping in the usual season of rebirth, it will ship when spring fully embraces Nova Scotia, or around the second week of this month, a Lotus source said.

"It is like having hot breath on the back of your neck," said Conall Ryan, Agenda product manager, of its release.

Agenda's delays had little to do with bugs and performance. In fact, the product has been used internally at Lotus for months, according to the company, and beta-tested by such notables as Walter Cronkite, who is reportedly using the product to organize his memoirs.

Lotus delayed the product's release to improve what some called a Spartan and perplexing interface. "Beta sites said it needed a new interface that was easier to use and more intuitive," said Greg Jarboe, director of corporate communications at Lotus. There was no word on Cronkite's opinion.

In addition to putting menus everywhere, Lotus added macros and a structured file format designed to easily plug ASCII data into Agenda.

Organized chaos

Agenda is part of a new category of information managers that help users collect and retrieve unstructured text and data. The ultimate aim of these products is to turn desktop clutter into organized electronic information.

A host of products already battle for share in this nascent market, but so far, none have become hits. Many observers said they expect the technology to get a more serious look once Lotus enters the market.

The product may still be difficult for users to understand at first, so Lotus is set to ship several templates.

S. Africa trade ban unfolding?

BY J. A. SAVAGE
CW STAFF

A final draft of the Democratic Party platform released last week and a trade bill certain to be passed by at least one branch of Congress is sending clouds over the political climate of continued business with South Africa.

Computer vendors have done little to deflect these winds of change and may simply write off the estimated $130 million in computer business done annually with the country.

The Democratic platform declared South Africa a "terrorist state" and called on the U.S. to "impose comprehensive sanctions upon its economy."

Bipartisan support

A bill that would cease all trade with South Africa, H.R. 1580, is currently under consideration by the House Ways and Means Committee and is endorsed by presidential candidate Michael Dukakis. It is expected to pass the House of Representatives by the end of this month. Washington observers said the trade issue is backed by both Democrats and Republicans.

"It's the judgment that the public supports strong action on South Africa; whichever party can take advantage of that public opinion will. In an election year, everybody's eager to please," said Stephen Davis, research analyst at the nonpartisan Investor Responsibility Research Center.

If the current bill does not pass Congress, the political climate has changed enough in Washington, D.C., that sources close to the issue said it is just a matter of time. "It will pass eventually," said Steve Weissman, staff director of the House Foreign Affairs Subcommittee on Africa. "As a result, the U.S. will be out of the computer trade in South Africa."

Even Hewlett-Packard Co., long a vociferous hold-out in keeping its business in South Africa, is not lobbying directly against total trade sanctions. An HP spokesman said direct business in sales and service is about $40 million per year.

IBM has not taken any position on the bill, although its former subsidiary, now an independent dealership, still sells computers in the country. A spokesman said IBM is not involved with any lobbying organizations that oppose it.

The National Association of Manufacturers is the only high-profile opposition to the bill.

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CASE next price battleground?

BY NELL MARGOLIS
CW STAFF

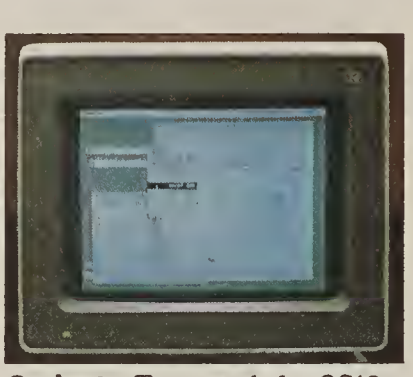
PROVIDENCE, R.I. — The computer-aided software engineering (CASE) market may become the next battleground in the software price wars and, despite protestations to the contrary, Cadre Technologies, Inc. may be about to fire the opening shot.

Next week, Cadre will unveil an OS/2 version of its Teamwork CASE system at a price that is a little more than half that of market leader Excelerator from Index Technology Corp.

The Teamwork family of workstation-based multiuser front-end (software planning, analysis and design) tools already claims some 2,500 installations worldwide in the scientific/engineering and defense marketplaces, Cadre said.

OS/2-bound

The latest member of the team, aimed at the commercial MIS market, is a stand-alone software package that bundles the company's structured analysis, structured design and information modeling modules and runs on IBM's Personal System/2 under OS/2, co-developed by IBM and Microsoft Corp. And it costs $4,995.



Cadre's *Teamwork for OS/2*

With a cut-rate price tag on a single-user version of a major CASE product, "experimental [CASE purchase] rates will definitely go up — and the rate of use will go up, too," said Greg Boone, president of Atlanta-based CASE Research, Inc.

According to Cadre Vice-President of Marketing Louis Reynolds, the company's thrust is toward putting a high-power, complex CASE tool set on the first single-user platform with enough horsepower to support it.

"This is not the opening shot in a price war," Reynolds said. However, he conceded, the move is an aggressive assault on a market now dominated by Index.

'Critical'

Index, which made its initial public offering last month, regards OS/2 as "absolutely critical — it's definitely a strategic direction of ours," said Vice-President of Marketing and Sales Chris Grejtak.

But, he added, "we have no short-term plans for a single-unit price change" for Excelerator.

A survey of commercial and business CASE sites published last week by CASE Research showed that Excelerator holds 35% of the front-end market; the next most entrenched vendor, Knowledgeware, Inc., accounted for 20%, while third-place Nastec Corp. commanded a 12% market share. The bottom three of the six front-end CASE vendors, which, according to the survey, locked up more than 80% of the market, each accounted for a single-digit percent.

"Excelerator is clearly the market leader," said CASE Research President Greg Boone.

Frontal assault?

"Cadre is going after Index's market, and it's going on several bases," said Ed Acly, program manager for software technology services at Framingham, Mass.-based International Data Corp.

Dramatic differentials notwithstanding, he said, price may not be the sharpest weapon in Cadre's arsenal. The Index offering carries a list price of $8,600, "but I doubt that very many people are paying list price for Excelerator," Acly said.

Index's Grejtak said, "There's a significant difference between the single-unit price and what you see as users move into volume. We have a number of different pricing plans."

Compiler keys svelte 1-2-3

CAMBRIDGE, Mass. — The development team hacking down Lotus Development Corp.'s overly plump 1-2-3 Release 3.0 may have found a simple solution to part of the problem of squeezing the program into MS-DOS's 640K-byte memory space — dumping Microsoft Corp.'s C Compiler in favor of another.

Release 3.0 code could shrink as much as 20% by recompiling the product using the Watcom C 6.0 Compiler from Watcom Products, Inc. in Waterloo, Ontario. The Watcom Compiler reportedly also offers increased speed of compiled code. All this is achieved without rewriting or eliminating code.

"If we find better tools, we will use them," said David Reed, head of the Release 3.0 development team. "We are not ready to conclude our investigation, but we found some significant improvements and no red flags." Lotus has experienced reductions in code size from 7.5% to 20%, Reed said.

Lotus, which develops nearly all its products in Microsoft's C 5.1 Compiler, said it expects to make a decision within several months and may switch all development activities to the Watcom product. But the biggest impact will be on Release 3.0; any way of reducing code could help Lotus meet its year-end deadline and provide space for work sheets.

DOUGLAS BARNEY

IBM plunges into imaging waters

BY KATHY CHIN LEONG
CW STAFF

IBM, capitalizing on a potential $530 million market by 1990, has officially entered the document imaging arena after a year of prototype testing at Citibank NA and the United Services Automobile Association (USAA).

However, IBM, which has previously acknowledged it was considering selling full-scale imaging systems [CW, May 30], will wait until the fourth quarter of this year or the first quarter of 1989 to deliver the new Imageplus system, which will initially support IBM's System/36 and the AS/400, formerly code-named Silverlake. Until then, it said it will work with selected customers on an individual basis.

"It was more of a positioning statement than an actual product announcement," said International Data Corp. (IDC) analyst Paul Thomas.

Image technology is gaining favor as a search and storage medium in paper-intensive markets such as insurance, government, medicine and banking.

Rising market

According to IDC figures, about $70 million worth of document imaging gear was shipped in 1987. That figure is expected to hit $126 million this year and top $975 million in 1991. Thomas said IBM is entering at the crest of a burgeoning field led by Filenet Corp. and followed by Wang Laboratories, Inc.

Imaging vendors agreed IBM will have a lot of catching up to do in understanding complex user requirements.

Even an IBM spokeswoman admitted that it will take a while for IBM to decide what components the Imageplus system will include. Details are sketchy.

According to Carl Conte, senior vice-president of IBM's Enterprise Systems Division, there will be several system configurations ranging in price from $200,000 to as high as $15 million. The Personal System/2 with a custom imaging board will be used as the workstation operating on an IBM Token-Ring network. An optical jukebox from Filenet will be part of the system, along with Bell & Howell Co. scanners. Other vendors may be included in the system in the future, he added.

Much of what IBM plans to market is based on pilot projects at Citibank and USAA. Imageplus will be integrated with existing data management programs, including IBM's DB2, and CICS. By the second quarter of 1989, IBM will deliver the system on MVS/ESA hosts such as the IBM 3090 and the 4381.

Competitors Plexus Computers, Inc. in San Jose, Calif., and Filenet in Costa Mesa, Calif., welcomed IBM to the imaging marketplace, but a Wang spokesman called the announcement "a disservice to customers. It serves to only confuse users and muddy the waters," charged Roger Sullivan, Wang's director of integrated image systems. Wang was the first major computer vendor to enter imaging last year and has sold approximately 70 systems.

Senior Editor Stanley Gibson contributed to this report.

CORRECTIONS

The correct product names for AT&T's 9.6K bit/sec. modems in a recent Spotlight chart [CW, May 23] are Dataphone II 2096A and Dataphone II 2296A.

Worldwide revenue figures for contract services in the Computer Careers chart [CW, June 20] should be in billions of dollars.

In "Vendors skewing DBMS tests" [CW, May 13], the 29.3 transaction/sec. reported by Sybase, Inc. was a steady-state rate sustained over three minutes in one benchmark, Sybase said.

The monthly license fees for SQL:Verify from Intex Solutions, Inc. in Needham, Mass., range from $200 to $500 [CW, June 27].

Summit Information Systems Corp. in Corvallis, Ore., was incorrectly identified as Summit Software, Inc. in Columbus, Ohio, in a June 27 story.

"4381 shortage to continue" [CW, June 20] was written by Susan Gannon of IDC Financial Services Corp.

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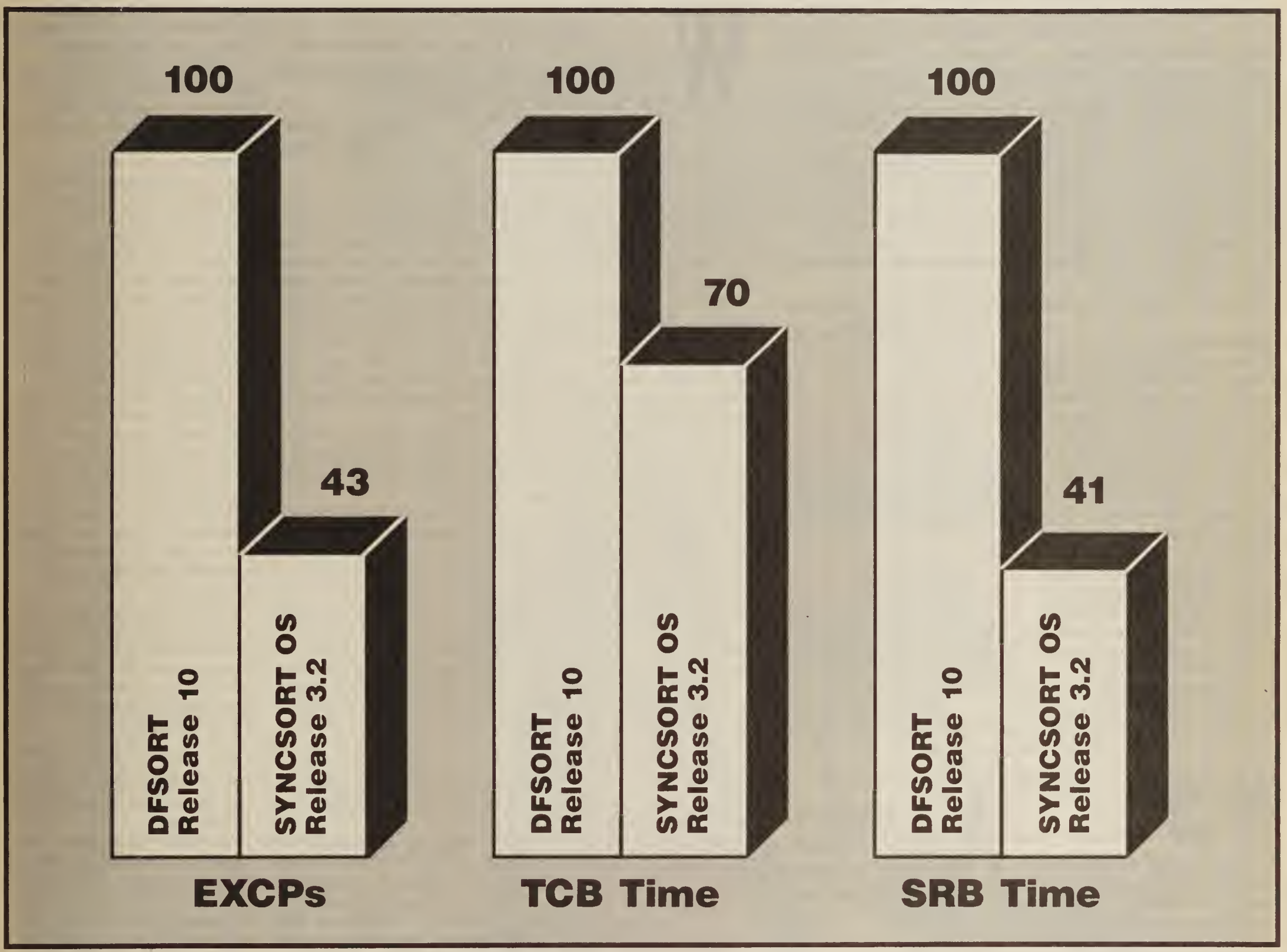

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Coping with Netview foibles

Users find third-party wares help manage IBM 'solution'

BY KATHY CHIN LEONG
CW STAFF

Corporate users, faced with the limitations of IBM's Netview, are turning to other vendors or creating their own network programs to enhance Netview functionality and ease of use.

Examples of such activity are found nationwide. In Chicago, United Airlines is co-developing a Netview/PC interface with MCI Communications Corp. to incorporate alarms from the MCI Vnet voice network.

In Hartford, Conn., Travelers Insurance Co., which could not wait for Netview, already uses an in-house program and intends to develop its own migration path to Netview at a later date.

In New Haven, Conn., Southern New England Telephone Co. is bunking Netview together with Cincom Systems, Inc.'s Netmaster for network security.

Uphill battle

Since their introduction in September 1986, host-based Netview and Netview/PC have been the IBM answer to managing both Systems Network Architecture (SNA) and non-SNA networks from a single workstation. And though Netview has entered its second release, it is still playing catch-up to the needs of the Fortune 1,000.

"We asked for something like this from IBM five years ago," said one large user at a petroleum company. "I imagine that seven years from now, we will get what we ask for today."

Resident in roughly 10% of the nation's largest MIS shops, Netview still does not use strategic network management elements, such as a graphics interface, compliance with endorsed IBM Systems Application Architecture languages, full bidirectional communications between Netview and Netview/PC, support for OS/2 under Netview/PC or integration of voice and data networks. All these features, IBM officials said, are due in "future releases."

However, current liabilities are forcing users to buy add-on products that make Netview more pliable. Chevron Corp. in San Francisco uses Netview to operate 30,000 terminals. To compensate for the lack of a graphics interface that would allow operators to glance at the entire network configuration, Chevron has purchased Net/Pic, a colorful graphics interface, from The Travelers Corp.

Since Netview does not feature stringent network security, Southern New England Telephone decided to purchase the Cincom Netmaster program even though it was already using Netview. Netmaster's front-end security feature was a must for the statewide customer billing network. It also included a user-friendly multiple-applications interface, said Southern New England Telephone network manager Doug Miller.

Many initial Netview users purchased Netview because it is dubbed as IBM's crown jewel of network management. Loyal IBM customers agreed that it is simpler to go along with IBM and demand that third-party vendors follow suit. Companies such as Chevron are encouraging future data communications vendors to provide Netview/PC interfaces before it signs on the dotted line.

To date, at least 30 vendors have announced interfaces to Netview. However, applications development is no easy task, and only a few have shipped.

Catbird seat

The largest users have a variety of network management requirements that will not be satisfied in the short term. United Airlines' Covia Corp. subsidiary was in an enviable position when it convinced MCI to develop a Netview/PC interface for the MCI Vnet voice network.

In its overall plan for integrated voice and data, Covia wants to be able to manage voice and data networks from one workstation.

"To be honest, we're still not sure if Netview is the answer to all our problems, but it is a good platform to begin with," said David Nevers, a Covia senior communications engineer.

But instead of relying on other vendors, some users are taking the situation into their own hands. In 1984, Travelers built its own SNA network management program with color graphics and integrated voice and data functions. "We have a good portfolio of tools that are superior to Netview, and we even sell them," pointed out Trav Waltrip, vice-president of communications.

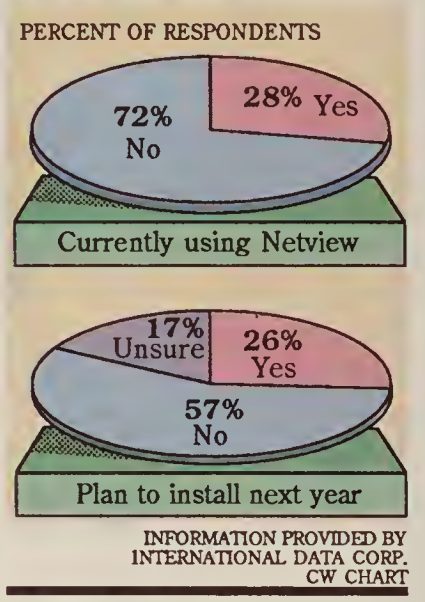
However, when Netview gets up to speed, the company will write its own Netview interface, Waltrip said.

Analysts have said IBM will need five years to make Netview feature-rich and easier to use. "Today, people are buying Netview and saying 'Where's the beef?' " said Mark Leary, an analyst at International Data Corp. Users' expectations of Netview, he observed, are based more on what Netview can do in the future rather than on what it can do today.

> "WE'RE STILL NOT sure if Netview is the answer to all our problems, but it is a good platform to begin with."
>
> DAVID NEVERS
> COVIA CORP.

Reluctant view

Only 28% of 107 Systems Network Architecture installations surveyed are using IBM's Netview, and only one-fourth of the rest plan to do so next year



INFORMATION PROVIDED BY INTERNATIONAL DATA CORP.
CW CHART

3Com buys SNA firm

SANTA CLARA, Calif. — 3Com Corp. announced an agreement last week to purchase Communications Solutions, Inc. (CSI), a subsidiary of Altos Computer Systems, Inc., for an undisclosed cash sum.

3Com also announced record sales and earnings for its fourth quarter and fiscal year ending May 31 and cut prices by 10% on its Etherlink II and Tokenlink adapter cards, effective July 1.

After the acquisition is completed this month, CSI will become an integrated operating unit within 3Com's Enterprise Systems Division.

3Com was an OEM of CSI, which will help position 3Com in the IBM Systems Network Architecture (SNA)-driven peer-to-peer connectivity market, according to Bill Krause, 3Com's chairman and chief executive officer. Key to that drive is CSI's recently released LU6.2 Maxess SNA gateway, which gives 3Com users access to distributed applications based on LU6.2.

CSI said it will provide support for Microsoft Corp.'s OS/2 LAN Manager via a new version of the Maxess SNA gateway.

In a separate release, 3Com reported year-end sales of $251.9 million, an increase of 62% over last year. Net income for the year was a record $22.5 million, up 39% from last year's $16.2 million.

Record fourth-quarter results included net income of $7.3 million on sales of $76.7 million. Sales increased 67%; net income grew 55% over results from the prior year of $46 million and $4.7 million, respectively.

AS/400

FROM PAGE 1

"Scope 34/36," a newsletter based in Lake Mary, Fla. He said that maintenance price increases over a period of time will be the single most important factor forcing users to move.

"As a technical person, I would love to have the best technical system here," said Bob Carrarini, data processing manager at Maynard Plastics Co. in Salem, Mass. But, he added, "From a company point of view, the System/36 works just fine. I know there is little chance of putting down $100,000."

With a System/36 Model 5360 B24, Carrarini said, if he needs more capacity or power, he can add memory or a larger disk or buy a larger used System/36. He said he sees no migration away from the System/36 for at least two years.

John McGilvreay, director of customer services at K & C Systems, Inc., a System/36 software and service provider in Woburn, Mass., that provides maintenance for Carrarini's System/36, said, "I haven't seen a lot of thrills from the System/36 user-installed base. They view [AS/400] as a repackaged System/38."

> "AS A TECHNICAL person, I would love to have the best technical system here. But from a company point of view, the System/36 works just fine."
>
> BOB CARRARINI
> MAYNARD PLASTICS CO.

Running a firm that concentrates on smaller System/36 shops, McGilvreay said, "We have a lot of clients who don't even know what the AS/400 is. They have no DP department. We've just convinced them they need to back up their data."

"For about a day, [users] thought it was the greatest thing they had ever seen. But when they stoped and thought about it, they asked, Why move?"

McGilvreay added that a lukewarm response among smaller users means his firm will not rush head over heels into AS/400 development. "It won't be the big emergency rush we thought it would be."

The System/36 will continue to be sold, but the last version of the machine's SSP operating system has been written, IBM said. Any future enhancements will be confined to networking protocols for System/36s connected to System/38s and AS/400s.

Continuing development for the System/36 will not be impeded by the lack of enhancements for the SSP operating system, at least at first, McGilvreay said. However, as clients require more functionality, it could be a problem later on.

The drying up of advanced functions with the System/36, if it does not cause them to migrate, could be a cause of annoyance.

Standing pat

Al Hansen, MIS Director at the YMCA in metropolitan Milwaukee, said he wants to keep his System/36. He said he wants to run PC Support for the System/36 under OS/2 Extended Edition with IBM Personal System/2 Model 80s but was told by IBM that such a version of PC Support will not be implemented for use with the System/36.

"We're happy with the System/36 and want to stay there," Hansen said.

An IBM spokesman confirmed that IBM intends to offer AS/400 PC Support under OS/2 Extended Edition and said IBM is evaluating OS/2 Extended Edition for PC Support for the System/36, but not for the System/38.

PC Support on the System/36 and 38, as well as on the AS/400, is now limited to Microsoft Corp. MS-DOS-based PCs.

Even though many smaller users may not want to make use of the migration path any time soon, at least a migration option is available that was not there before, pointed out Rodger Peck, president of Peck Systems Group Ltd. in Bridgman, Mich., which is a System/36 developer.

"For high-end users, their only other option was to go to the System/38. But that was too expensive. Now, they can migrate at half the cost," Peck said.

Apple tightens IBM links

BY JULIE PITTA
CW STAFF

CUPERTINO, Calif. — Apple Computer, Inc.'s promised IBM Token-Ring network product is expected to be an important piece of its strategy to connect the Macintosh into IBM environments.

A Token-Ring adapter board is scheduled for introduction by Apple sometime this fall, according to company officials. In addition, Apple will introduce an IBM 3270/5250 terminal emulation board, considered a less significant product because of comparable offerings from outside vendors. Initial versions of both products are being designed for the Motorola, Inc. 68020-based Macintosh II.

The Token-Ring and 3270/5250 boards for the Mac II are scheduled for shipment in early 1989.

Attention getters

"They will absolutely legitimize us," said Gerald Malec, vice-president of business marketing at Apple. "They will get the attention of MIS."

Malec conceded that the Macintosh has failed to become a standard within many large corporations because of the absence of Token-Ring and 3270 kinds of applications. David Nagy, the company's marketing manager for IBM host communications, said the lack of a Token-Ring product could significantly hamper Apple in its efforts to penetrate Fortune 1,000 accounts next year.

"We certainly could have had further penetration in large corporations with the Token-Ring," Nagy admitted. "But I don't believe we've lost out on a lot of accounts yet. If we don't have it by early '89, we certainly will [have lost out]."

According to Dataquest, Inc., token-ring is the fastest growing local-area network technology. Dataquest reported that 225,000 token-ring PC-LAN connections were shipped last year by IBM and other companies, representing 21.6% of that market. Ethernet, the 12-year-old connection spawned by a joint venture between Xerox Corp.'s Palo Alto Research Center, Intel Corp. and Digital Equipment Corp., accounted for 430,000 PC-LAN connections last year, making up 41.3% of the market.

This year, 636,000 token-ring PC-LAN connections will be shipped, Dataquest predicted, representing 34% of the market. Ethernet PC-LAN shipments will reach 748,000 this year, accounting for 40% of the market, Dataquest said.

"By coming out with a Token-Ring product, Apple can nearly double their penetration," said Brad Baldwin, an analyst at Dataquest. "If it's an IBM shop, connectivity will continue to be Token-Ring, but there's now more flexibility on what's on the desk top."

The Token-Ring and 3270/5250 boards are two pieces of Apple's IBM connectivity strategy. Recently, Apple announced the purchase of Orion Network Systems, Inc., a leading developer of software applications that are compatible with IBM's Systems Network Architecture. Apple also blessed Novell, Inc.'s Netware for the Mac, allowing Mac-based LANs to communicate with Microsoft Corp. MS-DOS-based LANs.

Nagy said Apple hopes to garner third-party server support for Token-Ring for the Mac II, especially Novell's Netware. The firm also expects to run its Appletalk protocol over Token-Ring.

Users said Token-Ring is a welcome addition. Jeff Ehrlich, manager of computer technology at General Electric Co., said Token-Ring is at the top of his wish list of products from Apple.

"We want to standardize on Token-Ring. That's the way we need to connect," Ehrlich said.

"There are a lot of IBM mainframes and Token-Rings out there that Mac needs to connect to. It's important that they prove their commitment to connectivity," said Rick Richardson, national director of technical development at Arthur Andersen & Co.

HP breaks out ROM store card

PALO ALTO, Calif. — Hewlett-Packard Co. announced a read-only memory (ROM) card last week that stores software applications and can load them automatically upon booting up.

The HP ROM Disc Accessory is aimed at OEMs, value-added resellers, software developers and corporate in-house systems experts. It is said to help the installation software applications on the card and, thus, make the software instantly available to users.

The full-height IBM Personal Computer AT-compatible add-in card will eliminate the need for users to load a program from a disk drive. Instead, users can take advantage of the system ROM, which can load software at greater speeds.

The HP ROM Disc Accessory costs $235 and comes with Microsoft Corp.'s MS-DOS 3.2 as well as sockets for up to 768K bytes of memory for application storage. A programming kit is also available for $260 to help developers install applications. A copy-protection device is included to prevent unauthorized duplication of software in ROM.

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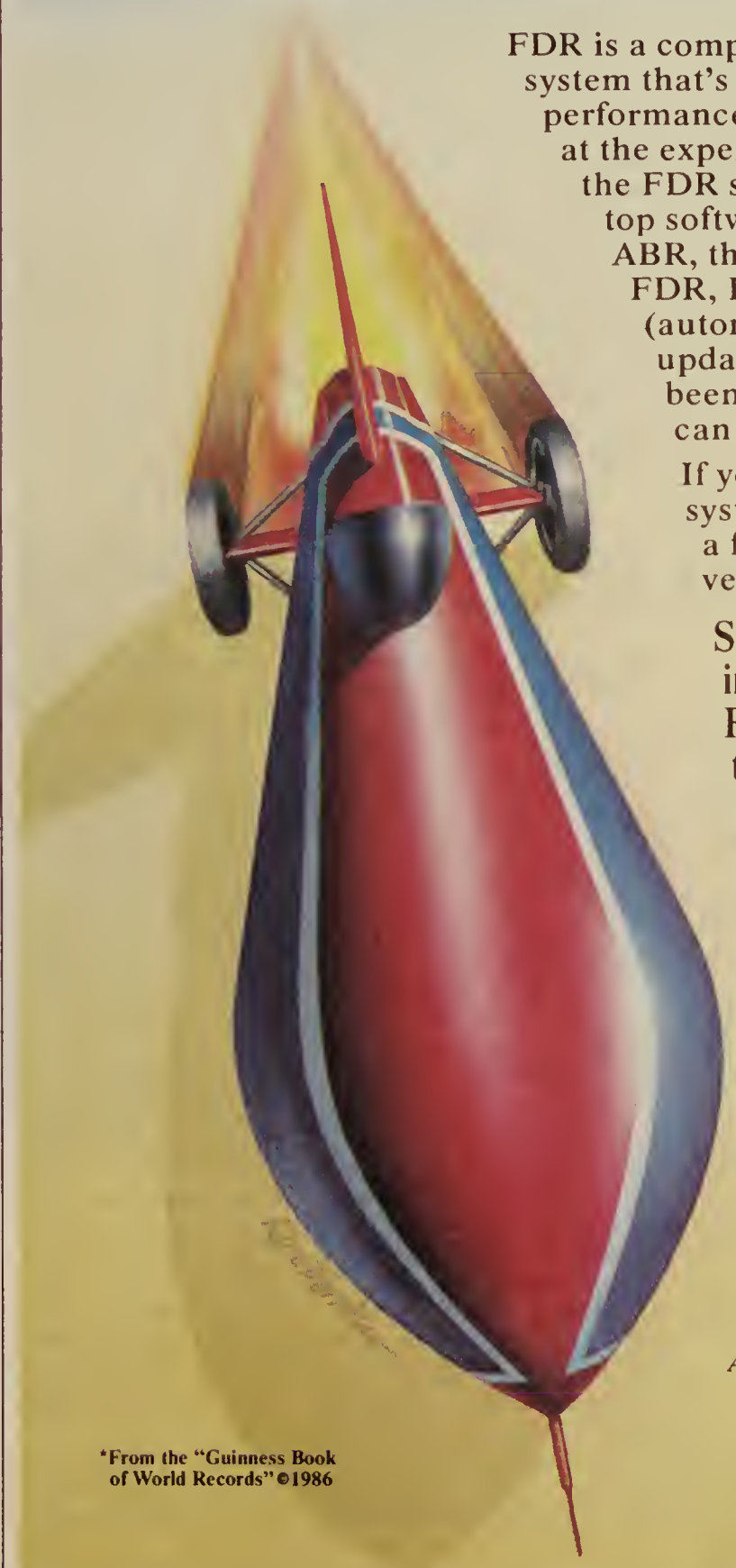

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Microsoft pulls switch on Cobol technology

BY STEPHEN JONES
CW STAFF

REDMOND, Wash. — Microsoft Corp. is slated to announce this week that it is scrapping its Cobol language development tool in favor of a smaller developer's product, sources close to the company said.

Microsoft will market London-based Micro Focus Group's Cobol/2 compiler and pull the plug on the dusty technology of its own Cobol 2.0, which has not received an upgrade in nearly two years.

As part of the licensing agreement, Microsoft's Codeview Debugger will be integrated into the product.

With IBM scheduled to sell the same Micro Focus product, all three companies will try to promote the compiler as an industry-standard tool, sources familiar with the effort said.

The deal should help Microsoft get over its Cobol problems. Long-considered a leading-edge developer for such microcomputer-oriented languages as C, Pascal and Basic, Microsoft had trouble earning the same success with Cobol.

Some observers blamed Microsoft's Cobol 2.0 weaknesses on the fact that the micro-based developer did not have the know-how to work with a mainframe-oriented language like Cobol.

Many users questioned Microsoft's support of the product last February, when every Microsoft language but Cobol was upgraded to support IBM and Microsoft's OS/2 operating system.

Ironically, one of Microsoft's biggest competitors in the Cobol market has been Micro Focus. Neither company would comment on the deal.

Offers migration

Programmers who have used Microsoft's Cobol will be able to port their applications to the Micro Focus language with a file and source conversion utility, the vendor said, which should calm some users' fears that the rumored switch of Microsoft compilers would leave them with no migration path.

As part of the licensing arrangement, Microsoft will put its name on the product and sell it in the DOS and OS/2 markets. Sources said Micro Focus will market the language to high-end Microsoft Xenix customers under the Micro Focus label.

The Cobol programming language is scheduled to ship this week, but pricing was not available at press time.

Senior Editor Douglas Barney contributed to this report.

Rabbit plans network manager

Pits product against IBM's OS/2 Communications Manager

BY PATRICIA KEEFE
CW STAFF

MALVERN, Pa. — Rabbit Software, Inc., a supplier of micro-to-mainframe software, confirmed plans last week to build an alternative to IBM's OS/2 Communications Manager that will also take aim at competitive offerings.

The Communications Manager is an option under IBM's OS/2 Extended Edition. It provides access to information located in a variety of other local and/or remote systems, issues network management alerts and supports multiple concurrent communications connections.

"We will be doing something in that area, probably a combination of the IBM and DCA approaches," conceded Charles Robbins, Rabbit's vice-president of strategic planning.

Competitors Digital Communications Associates, Inc. (DCA) in Alpharetta, Ga., and AST Research, Inc. in Irvine, Calif., have already announced plans to provide Communications Manager alternatives.

According to Robbins, IBM's approach involves putting physical units, or PUs, on a workstation; DCA prefers to provide all communications processes through the file server. A PU is a component under IBM's Systems Network Architecture that manages and monitors the resources of a node.

Rabbit's architecture, slated for delivery in 1989, would provide users with a choice of either option and, thus, their pick of the resultant trade-offs, Robbins said.

DCA's approach centralizes a great deal of code in the server, ridding each workstation of millions of lines of code. A single PU also takes up less resources on the mainframe, which is more cost-effective, Robbins said.

"But on the other hand, if you are in a real Blue environment, you'll want a PU on each workstation so that network management can be done on a workstation basis rather than on a LAN basis," Robbins said. "A PU in a box gets to [IBM's] Netview and makes it easier to support more distributed networking."

Counters IBM strategy

The server approach sacrifices the user's ability to do that, going counter to IBM's strategy, he added. "Some users will really have to think about whether they want to do that," Robbins said.

Rabbit's product plan revolves around one piece of modular software that will let users locate PUs on either the workstation or the server.

A communications manager can be divided into three pieces: data link importing, PU processing and workstation handling, which involves different kinds of emulation, from IBM's 3270 to LU6.2 to CCITT's X.25.

Rabbit's goal is to create an architecture that is properly modularized and designed so that the data link hardware and software components can communicate with the PU processing hardware and software components via a standard IBM I-Frame, while also doing the same thing between PU processing and workstation handling using protocols like IBM's DFT.

Thus, one piece of software would allow the user to move the three "pieces" around. "It's an issue of product management — how do you release the software and allow users to choose between the two options?" Robbins said. "The particular set of products that we release under this architecture will be a function of what we see users demand."

Although work is underway on the project, Rabbit does not intend to release OS/2 products prior to 1989, Robbins said. "The demand from end users is just not there," he said. Nevertheless, Rabbit has worked itself past technical hurdles with LU6.2 and is ready to support Microsoft Corp.'s OS/2 LAN Manager. "We can move quickly to support various interprocess communications, in particular [Microsoft's] Named Pipes," he said.

Firm won't be burned again

BY JEAN S. BOZMAN
CW STAFF

DES PLAINES, Ill. — Burned once, Patrick Murray vows: "We're not going to be caught by a single point of failure again."

Vice-President of MIS at United Stationers, Inc., a $730 million wholesale stationery distributor headquartered in this Chicago suburb, Murray is still smoldering over the fire at Illinois Bell's local telephone switching office.

The disaster at the Hinsdale location [CW, May 16] caused near-total disruption of United Stationers' telecommunications network. Although service has since been restored, the company's information systems executives said they are not willing to settle for business as usual.

"There will be some changes," Murray said last week. "We're going to have to find a way to bypass the central telephone office."

United Stationers was able to rebuild its data network within days by moving operations to a New Jersey disaster recovery hot site, but it was a costly solution.

Along with a monthly fee of more than $10,000, an IBM mainframe user pays as much as $50,000 to enter a large-scale Comdisco Disaster Recovery Services, Inc. hot site, as United Stationers did. The company also pays a daily usage fee of $5,000 to $25,000 for every day it remains on-site.

Although the company estimated that the disaster plan saved $30 million in potential lost sales, Murray and other executives here objected to the fact that they had to move at all. What particularly irked Murray was that a single point of failure — the phone switch — had disrupted the firm's 12-city backbone network, which includes centers in Philadelphia, Atlanta, Dallas and Los Angeles.

Unprepared

"We don't understand it when one of our key vendors doesn't take the same kinds of precautions we do," he said. "We have halon, we have water, we have two power sources and we have UPS, and it looks like they didn't have all those precautions."

Illinois Bell had considered — and rejected — the installation of halon fire-suppression systems at its telephone switching offices, according to Illinois Bell spokeswoman Pat Montgomery. "There's a school of thought that halon is not applicable in all situations," she said.

Illinois Bell, an Ameritech subsidiary, had to replace 118,000 long-distance lines, 36,000 data lines and 35,000 local phone lines routed through the Hinsdale, Ill., switch. As Illinois Bell struggled to re-establish telephone service, United Stationers' telephone traffic dropped off 85%. "We were able to Band-Aid together only 15% of our network that Monday," said Don James, director of data processing.

United Stationers' computers in another western Chicago suburb were unaffected by the outage. But the IBM 3090 Model 300E and IBM 3084 Model QX mainframes there were isolated from the backbone network — as well as from thousands of incoming calls for orders.

The Illinois fire *caused near-total disruption of United Stationers' data network.*

The firm has 3,000 corporate customers who relay orders from remote terminals nationwide.

The 6-year-old disaster recovery plan prompted the airlift of 31 employees to the hot site in Carlstadt, N.J., where operations continued until May 22. A nearby hot site was already occupied by another firm.

Although the network was promptly restored, that was not accomplished without inconveniences. A call from the company's Edison, N.J., warehouse to the hot site twenty miles away "had to first travel from Edison to Los Angeles, and then to Dallas and Atlanta," telecommunications director Bernard Schneider said. "Scores of additional wire connections were made to the backplane of the hot site's data switch."

Internal probe

Illinois Bell is undergoing a three- to six-month internal investigation of the fire, which is also being investigated by the Illinois Commerce Commission.

So far, eight lawsuits have been filed against Illinois Bell for failing to halt the fire before it raged out of control. United Stationers is not among the litigants.

Illinois Bell has confirmed that flames went unchecked for nearly an hour at the unattended switching office — while, by design, no alarm rang at the nearby firehouse. Illinois Bell feared that local firefighters, not supervised by phone personnel, might ruin the switches with water.

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	Tucson	Aug 4
CA	Costa Mesa	Jul 7, Aug 2, Sep 1
	Los Angeles	Jul 21, Aug 16, Sep 15
	Oakland	Jul 26
	Ontario	Aug 18
	Sacramento	Aug 4, Sep 22
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	San Francisco	Jul 19, Aug 16, Sep 14
	San Jose	Jul 26, Aug 18, Sep 20
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	Houston	Jul 21, Aug 11, Sep 8
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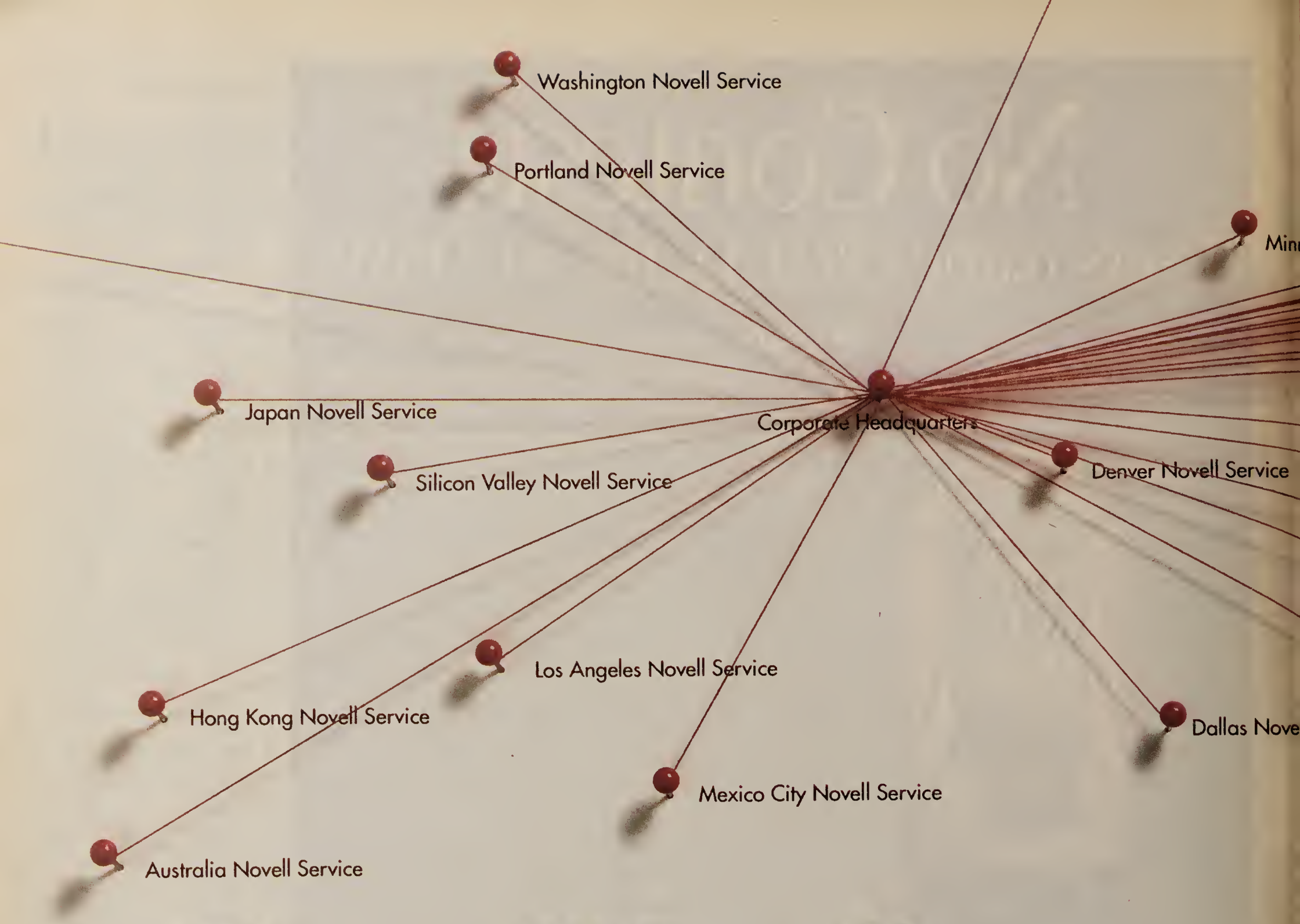

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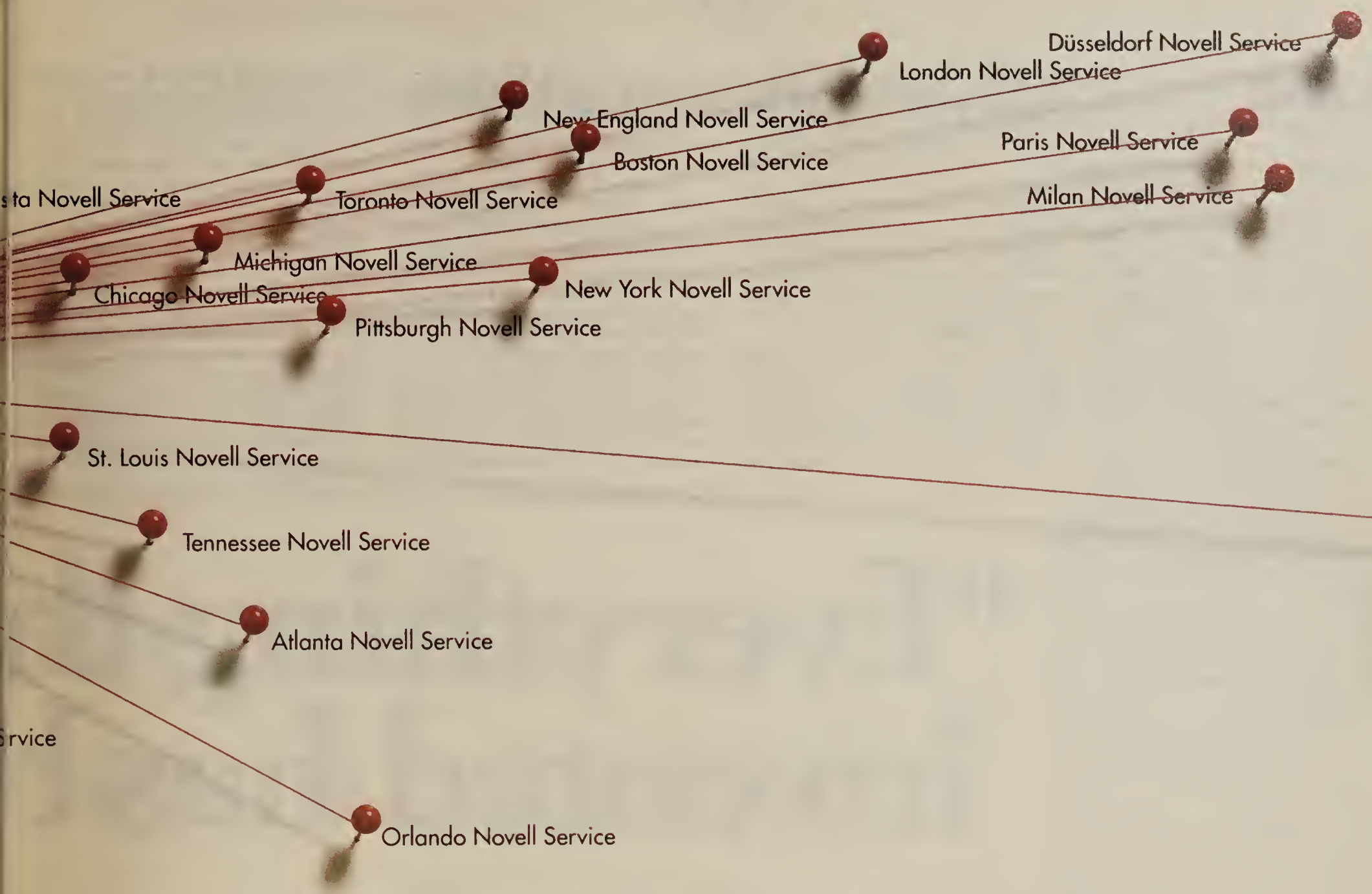

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For network solutions, you should be seeing red.

Microsoft

FROM PAGE 1

Tate's chairman and chief executive officer, has said that the cost of such a product would increase from its current $725 to a four-figure level.

Lotus is expected to raise prices for its 1-2-3/G graphics-based program, but the company has stayed quiet on plans for that program and its Lotus/DBMS data base.

Whether Microsoft's stance will set a pricing precedent for the industry is not clear, but some observers said most companies will be forced to take a similar approach.

"Just because it runs under OS/2 doesn't mean it's more valuable," said Mort Rosenthal, chairman and chief executive officer of Corporate Software, Inc. in Westwood, Mass. "Anybody who thinks that an application is going to cost more because it's under a graphical user interface is crazy."

> "JUST BECAUSE it runs under OS/2 doesn't mean it's more valuable."
>
> MORT ROSENTHAL
> CORPORATE SOFTWARE, INC.

Rosenthal and others did say that prices should be higher for next-generation products offering loads of functionality and graphics capabilities.

Lotus forged a price precedent of its own in the DOS world when it tacked a $495 price tag onto its release of 1-2-3. That level has remained constant in the spreadsheet market as other products, such as Microsoft's Excel, have adhered to the price.

The $495 application mark was subsequently cut down by newcomer Borland International, which set the stage for $99 consumer software.

Analysts agreed that there will be room for low-end pricing under OS/2, but Borland has not said whether it will once again lead the charge. The $725 price of Borland's Paradox for OS/2 Standard Edition 1.0 is the same as that for earlier versions, but its Sprint word processor was marked up from $199.95 for a DOS version to $299.95 for a Standard Edition 1.0 package.

The ultimate winners or losers in the price puzzle could be users, who will be taking an uncharted course into the OS/2 waters.

Some corporate users, such as Arthur Andersen & Co. in Chicago, have avoided the guessing game on OS/2 pricing by adopting an aggressive strategy on Microsoft's Windows that allows them to run graphics-based products now without waiting for the Presentation Manager.

Other users said a high price would not necessarily scare them away from an application. "You could get pretty sore waiting on the edge of your seat for Presentation Manager and its applications, but I'm more concerned with functionality than pricing," said Ron Goldfarb, manager of office automation at Pratt & Whitney Administration in East Hartford, Conn. "It doesn't matter if the thing is $100 or $300, it's the functionality that's important."

CAD, scientific users get Sparc

BY JULIE PITTA
CW STAFF

MOUNTAIN VIEW, Calif. — Sun Microsystems, Inc. last week added to its workstation line based on its Scalable Processor Architecture, or Sparc, with a system targeted at mechanical design applications and a second product designed for scientific users.

Both workstations feature three-dimensional graphics and imaging. Called the Sun-4/150CXP, the system was designed for mechnical and structural computer-aided design. A second system — the Sun-4/150TAAC — is targeted at scientific research applications, including medical imaging and geology.

The Sun-4/150CXP offers processing power of 7 million instructions per second in integer mode and 0.8 million floating-point operations per second. In addition, it features a geometry accelerator that allows the system to draw 150,000, 10-pixel three-dimensional vectors per second and create 20,000 Gouraud-shaded, 100-pixel triangles per second.

A base configuration of the workstation provides 8M bytes of random-access memory, 16 bit-planes for dynamic graphics with 256 colors and a 19-in. color monitor. The price of the system with a 327M-byte hard disk drive and a 60M-byte cartridge tape drive is $54,300.

The Sun-4/150TAAC features the TAAC-1 accelerator, which allows near-real-time image processing, photorealistic rendering and volumetric data display as well as interactive 3-D graphics, according to Sun. A base configuration of that system with a hard drive and a cartridge tape drive is priced at $72,800.

A company spokesman said the workstations are comparable to recent offerings from Silicon Graphics, Inc., Hewlett-Packard Co. and Apollo Computer, Inc. However, they lack the computational ability of higher end systems like those from Ardent Computer Corp. and Stellar Computer, Inc., which have been dubbed single-user supercomputers.

"Everything th
invented has b

Trade-in hitches bug users

IBM's PC for PS/2 cash-in hurt by low prices, time factor

BY ALAN J. RYAN
CW STAFF

IBM's recently announced trade-in policy, which allows users to cash in their IBM Personal Computers to buy Personal System/2s, is not gaining much support from large user sites.

MIS directors polled last week unanimously applauded the concept of trading in used equipment as a stepping-stone to move into new technology. However, the IBM policy has several financial and timing hitches, they said.

Some of the drawbacks the MIS managers cited last week include the following:

• **Low trade-in prices.** Trade-in prices reportedly range from just $100 for an IBM PCjr to $1,175 for an 8-MHz IBM PC AT Model 339 with 512K bytes of memory and a 30M-byte fixed disk.

Most users said they could get better rates selling their computers to used equipment brokers than participating in the trade-in program.

"There are used computer markets, like the Boston Computer Exchange, and their prices are much higher for trade-ins than what IBM is offering," said Cheryl Currid, manager of departmental computing at Coca-Cola Foods in Houston.

• **Depreciating values of older PCs.** In any company, computers are regarded as equipment that depreciates in value. For that reason, most companies cannot write off their equipment until it has been fully depreciated. In the majority of companies, depreciation may take anywhere from three to six years.

"It's hard in a company to move things out. Things purchased in 1984 or 1985 still have a couple of years on them before we can trash them," Currid said.

• **Hand-me-downs.** In larger companies, there is often a higher demand for computers than there are actual units available, the MIS managers said. Thus, when new machines are purchased, the older units are passed down the line within the company.

One manager said he would get more value from a machine by using it to replace a typewriter on a secretary's desk than if he traded it in for $500 to IBM.

• **Timing of the program.** The trade-in period, which some speculate is a testing period for IBM to see if such a program might prove to be worthwhile, was scheduled to last from July 1 through Aug. 31. That two-month window, some users pointed out, does not give them enough time to cut through all the red tape at their companies to obtain purchase approval.

• **Non-IBM technology on IBM computers.** Most of the managers contacted last week said that nearly all of their IBM PCs include non-IBM add-ins. The value

> "IT'S HARD in a company to move things out. Things purchased in 1984 or 1985 still have a couple of years on them before we can trash them."
>
> CHERYL CURRID
> COCA-COLA FOODS

of the add-ins would not be considered as part of IBM's trade-in program. The users could remove the added equipment, but most of it would not work on the PS/2s anyway, they said.

"Even if we were considering it, if you've invested in aftermarket boards, modems, 3278 cards and some dedicated graphics devices and you have to pull them out and are left with boards incompatible with the PS/2s, you're really losing more than you're gaining," said Art Skopec, a senior PC analyst at the Memorial Sloan-Kettering Cancer Center in New York.

However, individual dealers who plan to sell the used equipment themselves could offer competitive prices on the used PCs.

Users were also unclear last week whether the trade-in program would allow them to receive the normal corporate price discounts they have received in the past from IBM.

Is aspirin included?

For the approximately 2,000 IBM authorized dealers, the trade-in program could not only mean increased traffic in their stores but also more headaches if the program takes off. Dealers have the option of either selling the used PCs on their own or returning them to IBM for the prices set by IBM. All units returned to IBM must be in working order.

Craig Thalmann, president of marketing at Cherry Hill, N.J.-based Compucom Systems, Inc., said Compucom was in the process of developing its own trade-in program when IBM announced its program.

"Administratively, it's going to be a nightmare," Thalmann said. "I don't think any dealer is prepared to handle returns like this. We have to take the product in, do a lot of paperwork and send it to IBM before we get reimbursed."

at can be
een invented."

John H. Duell, Director
US Patent Office, 1899

"Oh?"

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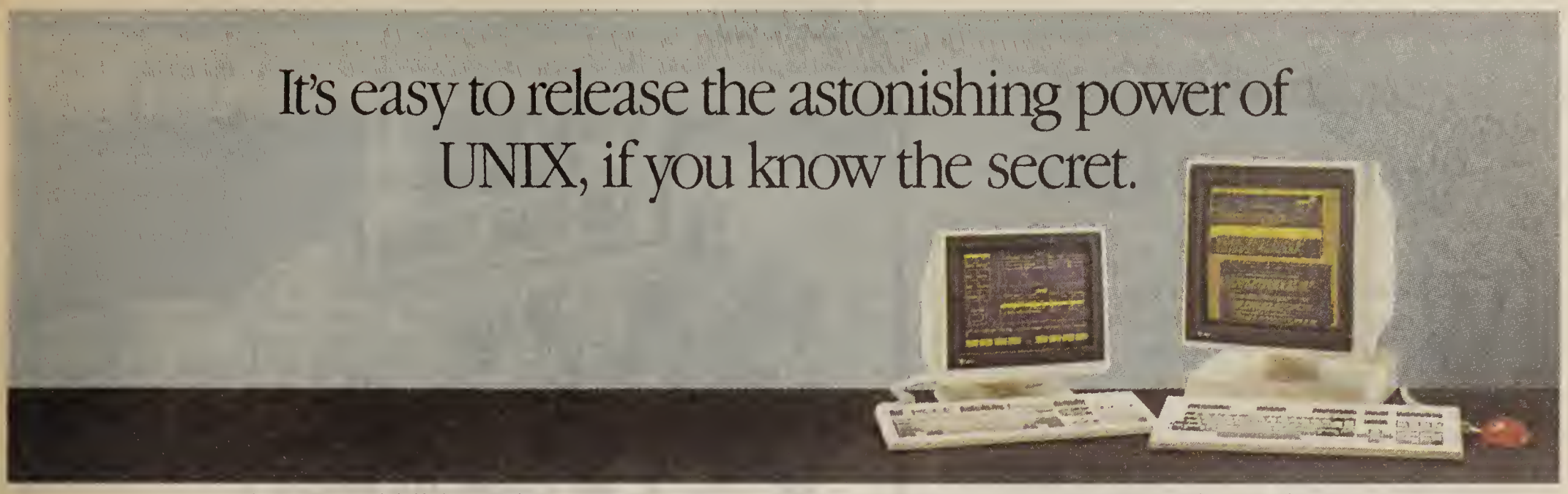

AT&T 605 BCT terminal (left) shown with AT&T PMX/TERM menu. AT&T 630 MTG terminal (right) displays text editing on two hosts, simultaneously.

The secret is the AT&T 600 Series Display Terminal family.

If you've ever been forced to live with two CRTs on your desk just to get the information you need, or have struggled to connect your terminal to a second computer, you'll appreciate the power and simplicity of the AT&T 600 Series Terminals—the first terminals that take full advantage of the UNIX® operating system invented by AT&T.

AT&T 620 MTG terminal (left) supports common business graphics interfaces. AT&T 615 MT (right) is the recommended multitasking UNIX System Administration terminal.

AT&T's windowing technology, built into the 600 Series, provides a seamless link to UNIX System V's multitasking capability and gives the terminals unprecedented windowing power. The result is that one 600 Series Terminal can do the work of several ordinary ones, saving you time, money and space, and improving productivity.

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AT&T's terminals allow you to display up to seven windows simultaneously, putting the world truly at your fingertips.

Each window behaves as if it were a stand-alone terminal with its own host connection, and up to seven windows can be displayed per host. Plus you get full bit-mapped graphics, local processing, and a large, easy-to-read screen.

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Most importantly, the windowing and other advanced features of the 600 Series Terminals work instantly with your system software; there's also no need to modify existing applications software. And the 600 Series works seamlessly with AT&T's powerful 6386 WorkGroup System and 3B Computer products.

AT&T 630 MTG terminal: Provides dual-host access and down-loadable applications (left); provides high resolution display of engineering or business graphics (right).

In addition, the AT&T 600 Series Terminals offer full PC terminal capability in the UNIX System environment so you can unleash the power of both UNIX System V and MS-DOS* applications for your remote terminal users.

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EDITORIAL

No time to lose

WHEN YOU CONSIDER the nature of the computer technology that is being held or threatening to be held hostage in the U.S. court system, it gets a little scary.

For example, there are active suits relating to the proliferation of popular spreadsheet implementations — Lotus vs. Paperback Software and others, Visicalc authors vs. Lotus — and suits seeking to limit the use of the graphical interface of the future — Apple vs. Microsoft and Hewlett-Packard but *really* against IBM.

Then we have the threat of suits relating to bus architectures — DEC's VAXBI and IBM's Micro Channel. And last week, IBM shocked large segments of the computer world with warnings that it might seek to protect what it claims are certain proprietary rights to reduced instruction set computing, or RISC, technology.

Fortunately, no one has yet sought to claim the blinking cursor as an intellectual property, as far as we know. But the claims or threat of claims against leading-edge technologies spanning the entire horizon from hardware to software to networking is already prodigious and will most certainly become even more overbearing in the near future.

The point is not to take issue with companies that aggressively seek to protect their rights, which they certainly should. Nor do we wish to raise the issue of whether this growing litigious storm is squeezing some small companies, proof of guilt notwithstanding — which it is.

What is needed, and needed soon, is an overhaul or at least a fine-tuning of the existing body of law pertaining to this kind of litigation. And that requires that the lawmakers in Washington get clear signals about the magnitude of the problem that is building.

This need for clearer, swifter interpretation of patent and copyright law was made apparent at a recent seminar on patent law sponsored by Hopkinton, Mass.-based Clearpoint Research. Clearpoint, ironically, is itself the defendant in a recently filed suit alleging that the company has infringed on certain DEC patents on bus architecture.

A mock closed-door discussion involving an intellectual property dispute was staged, but it involved a real-life judge. As both sides in the muddy matter aired their cases, one fact stood clear: The obviously intelligent and astute judge was stymied by a woefully limited scope of understanding of the technological issues and by a dearth of existing case law to enable him to confidently render even preliminary decisions.

There is no time like the present for getting the message to Congress that sweeping reform is needed to expedite the growing intellectual property case load. The time it takes to litigate even simple matters today can extend beyond the useful life of the products in question. When you consider the impact this can have on competition and the ability of vendors to bring their products to market, this situation is simply unacceptable.

LETTERS TO THE EDITOR

Uni(x)fy

United we Unix
thus provide a fix
to the industry problem,
said some of them.

Divided, said others, we stand
on the Unix standard brand.
The fifth-gen of Japan
may be a national plan . . .

This war of vendors,
the user community wonders,
all this rebellious fuss
where does it leave us?

Balu S. Nadig
New York

Not appropriate

I am writing in reference to "Silverlake advent nigh?" [CW, May 9]. The article got the story across with an analogy to the first coming of Jesus Christ and the events surrounding such. I am not writing to criticize what *Computerworld* is trying to get across to the reader about IBM. Rather, I hold that such an analogy is not appropriate.

William F. Clark
Bowie, Md.

Expanding horizon

I read with interest the article "Users take their Pick of versions" [CW, May 9]. However, users are interested in a standard Pick and portability. Obviously, portability increases the amount of third-party software available to a user and decreases the dependence on one hardware and software vendor.

The statements describing typical Pick users as small businesses or first-time users may have been true in the past but is rapidly changing. St. Joseph's University has been using various computers since the early 1960s, and we are now a Pick user. We have automated virtually all administrative functions of the university either through a package or in-house development. We converted from a mainframe environment and are now using a McDonnell Douglas Corp. 9240. Our system has 80 ports, 4M bytes of memory, 780M bytes of disk storage, system and departmental printers, bar-code readers and optical mark sense readers.

George J. Schneider Jr.
Director of Computer Resources
St. Joseph's University
Philadelphia

RISC vs. CISC

Efrem Mallach's column [CW, May 2] purported to set the record straight concerning my RISC vs. CISC benchmark results in Sun Microsystems, Inc.'s Sun-4 Sun Scalable Processor Architecture (Sparc)-based machine. Mallach's comments were a well-written rebuttal of points he alleged I have said. However, I have never promoted the ideas he discussed.

My comments about Sun-4 Sparc and reduced instruction set computing (RISC) are the following:

- Sun has been promoting the Sparc chip to vendors with primarily multiuser commercial customers, whereas Sparc has never been proven to be superior at commercial work.
- Sun and other RISC vendors have been promoting their technology based on million instructions per second (MIPS) ratings without explaining that since RISC instructions are simpler than complex instruction set computing (CISC) instructions, a million RISC instructions may not do as much work as a million CISC instructions. My findings may have been a worst-case scenario, but they seemed to show that in some calculation tasks, a 4-MIPS CICS machine ran up to 50% faster than a 10-MIPS RISC machine.
- A significant segment of the Unix market will be oriented toward multiuser commercial work. The RISC techniques have not proven to provide significant benefits to this segment. Before the industry commits to a technology, it would seem wise to confirm that it will provide real benefits to what may be the largest single customer group.

I have not condemned or criticized Sparc or CISC. I have only asked the question, Does this technology really work, and will it work for all segments of the market or just selected users?

Neal Nelson
Neal Nelson & Associates
Chicago

'He's' OK

In response to Jill Meyer's letter [CW, May 23], let me say that I am a woman and I am not offended in the least by generic use of the masculine pronoun in *Computerworld*. I consider it to be acceptable grammar, and it promotes readability.

Donna Manley
Manager of Systems and Programming
General Homes Corp.
Houston

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   - 31. Dir., Mgr., Suprv., of Programming
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COMPUTERWORLD

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For Unix, two sides are too many

Balance tips away from an open standard as OSF takes on AT&T, Sun

JAN LINDELOW

Has the era of truly open computer systems finally arrived? Will it soon be possible to move data easily among formerly incompatible systems? Will department managers be able to install new systems without their employees losing time and productivity because of retraining?

A consortium of seven computer companies recently established the Open Software Foundation. OSF announced it will provide a universal, Unix-based open software environment meeting the IEEE's Posix standards and X/Open's portability guidelines.

However, this commitment is not universally seen as a step forward for open systems. Rather, many see it as a defensive response to the AT&T and Sun Microsystems, Inc. agreement earlier this year to develop a unified Unix system for the commercial marketplace. A unified Unix would be the latest achievement of AT&T's pioneering work, which has spanned nearly 25 years in developing the Unix operating system.

Unified Unix would be based on the AT&T Unix System V, the University of California at Berkeley 4.0 series and Xenix — the three leading versions of Unix that account for three-quarters of all Unix systems shipped in the U.S. It would also adhere to IEEE's Posix and X/Open portability guidelines and, therefore, provide application portability across different systems.

Until these recent events, industry watchers agreed that the momentum behind Unix was building dramatically. With more and more users realizing the advantages of vendor-independent, open, distributed processing systems, the market has been growing exponentially. More than 100 vendors now offer Unix-based systems.

With the AT&T and Sun party and the OSF camp taking different roads, what will happen to users' dreams of openness? Unless the rift is healed soon, the Unix world of users and suppliers is in for a period of uncertainty and confusion. The politics of openness places the reality of openness at risk.

While the OSF's announced goals are noble, it is hard for some to accept its intentions and commitments at face value. After all, while AT&T and Sun have a long history of active commitment to open systems, some OSF members do not.

For example, it has been reported that the OSF's Unix environment will be based on IBM's version of Unix, called AIX, which is based on AT&T's Unix System V, IBM's own proprietary enhancements and perhaps those of others. One implication is that customers will have to pay licensing fees to both AT&T and IBM.

Further, is it possible that only companies that already license the Unix system from AT&T could legally receive source code from OSF? This situation would really complicate the issue. And in the first release of the OSF product, wouldn't IBM have a lead-time advantage in adapting applications to the new release? In fact, isn't IBM trying to dominate Unix?

Of course, the concerns motivating the creation of OSF are hardly insignificant. AT&T has announced its intent to develop the new Unix standard in a joint effort with Sun and to implement it first on a Sun proprietary chip. More troubling to some is AT&T's equity investment in Sun and its own aspirations as a major computer vendor.

Just when the elusive goal of openness seemed within our grasp, it appears now to have slipped away. The world of Unix is more complex, volatile and politicized than one would have thought possible. There are two camps, each waving the flag of openness for the common good of users; yet each is committed to its own version of a universal Unix.

But we don't need two standards. This divisiveness will only impede the development of a full commercial version, confuse and alarm users and slow the adoption of Unix as the standard for openness.

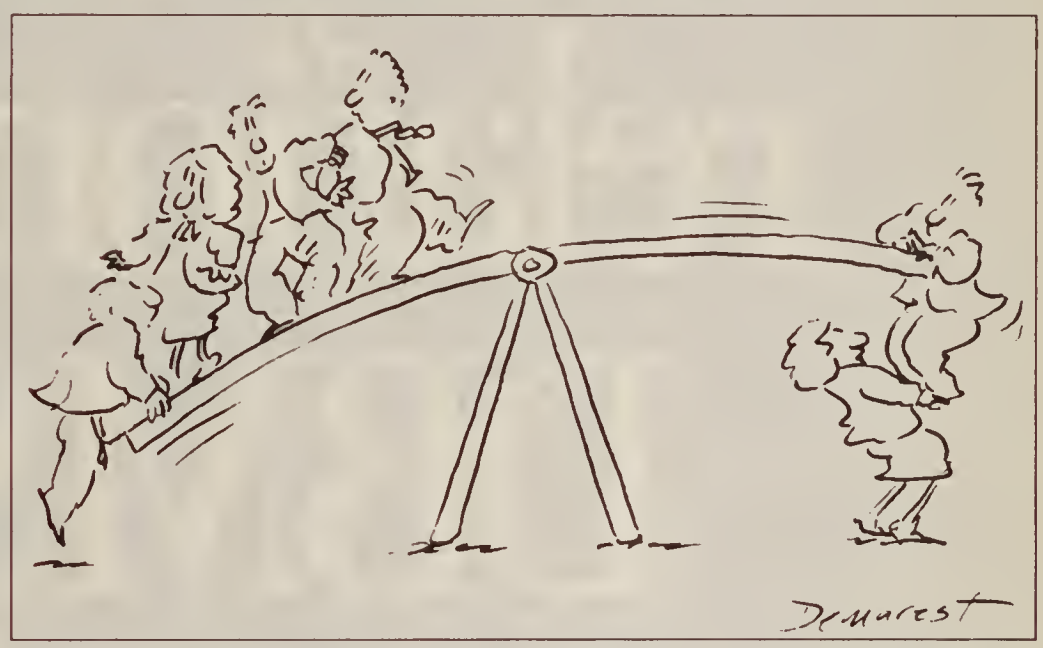
Best of both

Users' need for and expectations of openness should take precedence over the competitive concerns of the industry. The politicized and tensely competitive approaches to Unix development must be neutralized.

- Unix developers and standards organizations must meet to discuss, coordinate and reaffirm their commitment to an open Unix and to a comprehensive, open application environment.
- AT&T should reassess and accelerate its announced goal of entrusting Unix to a nonpartisan, independent foundation whose charter would be to safeguard the independence and standards compliance of a universal version of Unix. OSF itself just might be the ideal organization to which all Unix suppliers could contribute their expertise in accelerating the operating system's technical development.
- OSF should reassess its intent to use IBM's AIX as its base operating system. The enhancements IBM has brought to Unix should be put into a unified Unix along with other vendors' enhancements and tools.

But it makes no sense at all to not take advantage of AT&T's huge investment in Unix System V and its resident development expertise by making it the base of a truly open, unified Unix. Most important, of course, is that the investments users have already made in their Unix applications must be protected.

These and perhaps other steps must be taken to keep Unix and the drive toward openness on track. This is the time for leadership and farsightedness by all of us who have a stake in the future of Unix and the future of openness.



CHRIS DEMAREST

Lindelow is senior vice-president of Unisys Corp. in Blue Bell, Pa.

ANSI me this: Who has control over standards?

CARL CARGILL

In the May 23 issue of *Computerworld,* John Berg offered his views on the role of the American National Standards Institute (ANSI) in the standards process ("It's time to rethink ANSI role in standards").

Berg submerges the importance of some key aspects of standards setting — for example, the difference between the technical and management roles in that process. His omissions may give rise to a misunderstanding of the role of standards in the information technology industry.

Standards are voluntary and consensus-driven. The strength of U.S. national standards is rooted in the heterogeneity of the audience that participates in their creation. Standards Developing Organizations (SDO), which ANSI accredits, do the actual technical work. And the SDOs are staffed by the industries they serve.

For instance, if you use or provide a product or service, your input on the development of a standard for it is welcomed. Your role is technical, regardless of your education or ability to generate schematics. But Berg's view appears to be, "Users go home. Let somebody with a flashier resume do it for you." That is exactly the opposite of what is needed.

In its role as manager or administrator, ANSI complements the role of vendors and users on the technical development side. It does not reduce itself to the role of facilitator, as Berg says; rather, it rises to the occasion.

ANSI sets administrative procedures but does not dictate the substance of the agenda. It requires that the SDOs address basic questions such as, Is this standard needed in the industry? Does anyone besides myself care about it? It does not, however, formulate the answers.

In line with this, ANSI does not engage in central planning and does not want to. It does not dictate which standards for which products and industries are important. In a free market, users decide.

Berg criticizes the delays inherent in ANSI's "technical-plus-management" team approach. He wants everything handled more centrally, on a more businesslike basis. He wants us, among other things, to contract "specialists to develop specifications."

But a specialist who does not work for a company that either makes or uses the product will very likely lose sight of why standards exist. By making a service or product a standard, the SDOs define a metric for users and providers, setting expectations and deliverables.

Narrow brush with truth

Not only does Berg avoid this truth, he also blurs a related one when he talks about ANSI forming a strategic planning group to mirror a move by the International Standards Organization .

As stated above, ANSI does not engage in central planning. The so-called Strategic Planning Committee, which has held three meetings since January, sprang from the membership of ANSI-accredited X3 Information Processing Systems. Its origins, therefore, are in the technical (providers and users) component of the standards process, not the managerial (ANSI).

Further, its goals reflect the priorities of people giving technical input, namely the following:

- What standards are needed by the industry so that providers can meet future user demands?
- How can U.S. SDOs improve coordination with their counterparts in other countries so that the global market will be accessible to U.S. companies?
- What concept of "conformance to standards" is acceptable to the U.S. industry — that is, something they can live with without stifling growth?

Berg is drawn to a central planning activity reminiscent of the bureaucracies that currently control much of the standardization process in Europe. But those bureaucracies have spawned disasters. Standards planning in the U.S. is where it should be right now — in the hands of the people most directly impacted. This combination of providers and users creates an understanding of what is needed far better than any expert consultant planning agency.

But keep this in mind: It is not ANSI or a handful of advisers to the president that have the final say on standards or our plans for them. As long as the U.S. is a free-market society, it is the market that will ultimately decide the fate of a standard.

Cargill is senior standards consultant at Digital Equipment Corp. in Maynard, Mass.

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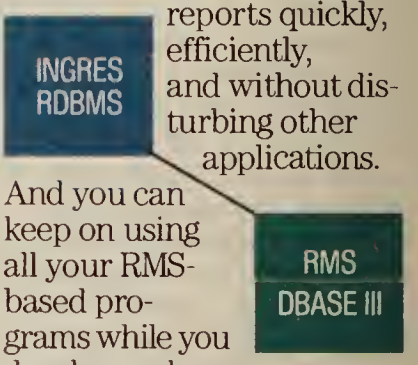

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SOFTWARE & SERVICES

SOFT TALK

Rosemary Hamilton

AS/400 shift: Caution urged

IBM is to be commended for the work it has done to enable relatively easy migration to its new platform, the AS/400.

However, one word of caution should be sent out to users. Relatively easy migration means that it can be done with a reasonable effort in a reasonable time period. It does not mean it's a piece of cake.

IBM clearly states in its customer letters that "someone with programming knowledge is needed to guide the migration process." It further notes that at some user sites, "programming skills may have to be contracted for by the customer."

As such, users should applaud IBM for making migration possible. But they shouldn't be too dazzled by the developers' presentations made at the AS/400 press conference late last month. Developers, after all, are in business to write programs. The real migration story lies with such users as Ryder Systems, a large IBM System/36 shop that is in the midst of an AS/400 migration.

Ryder senior systems consultant Lindsay Wells explained

Continued on page 20

CAD/CAM: What's in

Users are practical, hype-proof, report concludes

BY NELL MARGOLIS
CW STAFF

As a group, computer-aided design, manufacturing and engineering (CAD/CAM/CAE) users appear to be conservative, pragmatic, relatively impervious to buzzwords — and growing.

Such are the implications of findings in "CAD/CAM/CAE Users: Current Applications and Future Directions," a report recently published by the staff of "Computer Aided Design Report," a newsletter based in San Diego. The newsletter surveyed 815 CAD/CAM/CAE systems users in manufacturing and construction companies to discover which applications were in widest use during the past year.

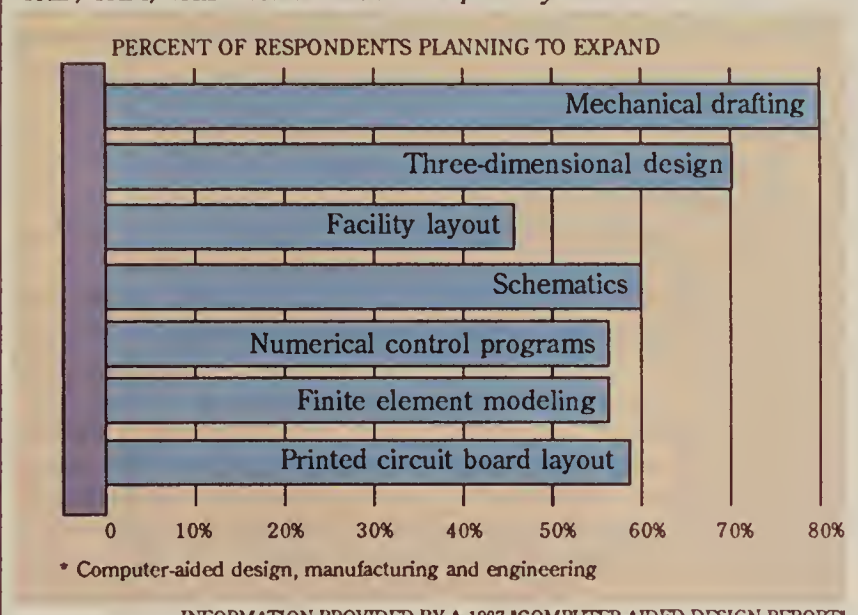
Mechanical drafting and three-dimensional design led the application popularity poll, with 89% of the surveyed users putting CAD software to work in the former area and 64% in the latter.

Bruce Jenkins, vice-president of Daratech, Inc., a Cambridge, Mass.-based market research firm that also reports on the CAD/CAM market, attributed the dominance of mechanical applications to the proliferation of manufacturing companies and to the fact that that segment "is already used to huge dollar outlays, so the cost of CAD systems isn't as much of a cultural shock

Continued on page 20

Software drives workstation buys

Mechanical drafting and three-dimensional design lead CAD/CAM/CAE commitment to expand systems*



INFORMATION PROVIDED BY A 1987 "COMPUTER AIDED DESIGN REPORT" READER SURVEY
CW CHART

Cincom remains in DBMS race

BY CHARLES BABCOCK
CW STAFF

CINCINNATI — When the province of Ontario was looking for a new DBMS 15 months ago, it wanted a relational system that had referential integrity and an application development environment — several of the features, in fact, announced with IBM's DB2.

But Version 2 of DB2 was not announced at that time. Version 1.2 was available, and Joseph Tabone, executive director of MIS, evaluated it along with 16 other products. "I thought it very important that the needs of the organization determine what we bought rather than have the organization adjust to the software," Tabone said.

As the supervisor of a department serving 200 government office sites and 8,000 employees, Tabone knew that he wanted the mainframe data base management system to serve for archiving data, but 50% or more of the processing would be done at local sites. And while the province is a substantial user of

Continued on page 20

Two firms go cooperative to ease strain on mainframes

BY ALAN ALPER
CW STAFF

NEW YORK — After careful consideration, two firms have embarked on cooperative processing projects that will help off-load precious mainframe computing cycles.

The companies, Towers Perrin, Inc., a Philadelphia-based management consulting firm, and Compass Computer Services, Inc., a Carrollton, Texas, computing services provider, disclosed the status of their projects at a recent meeting of the Teltech CICS Users Group, a group of New York CICS users sponsored by consulting firm Teltech Corp. Both firms are using Superlink, a development system for cooperative processing applications from Multisoft, Inc. in Lawrenceville, N.J.

Named by IBM more than three years ago, cooperative processing is defined as the use of multiple computers to jointly execute an application. "It is heavily involved in transaction

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Inside

- Pansophic adds Forecasting Workbench module to manufacturing control software system. Page 21.
- Kwic Software announces on-line information retrieval system for Wang VS computers. Page 22.

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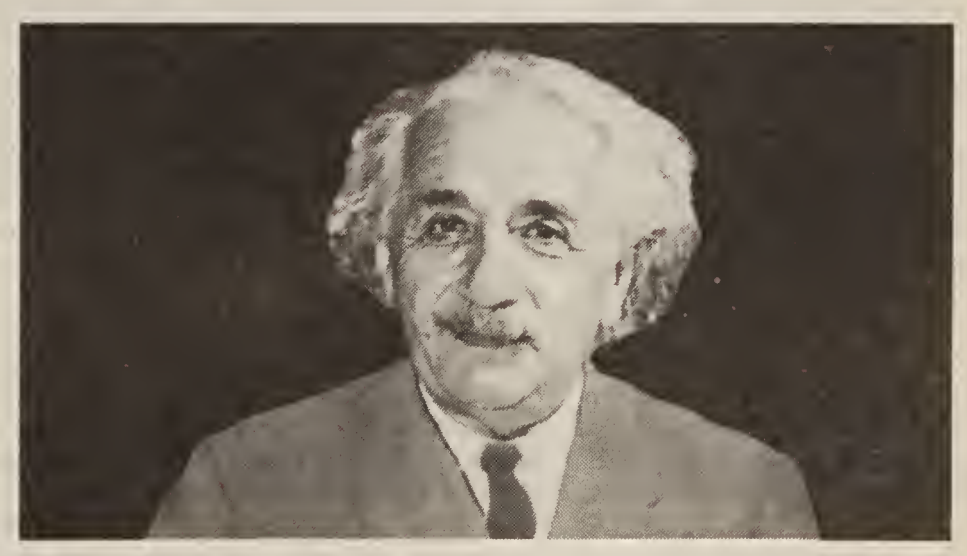

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Hamilton

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that the AS/400 migration has been a major task because Ryder is not a pure RPG shop, a not-uncommon situation in the IBM System/36 and 38 world.

As Wells tells it, the IBM migration tool helped Ryder find any code that departed from the pure System/36 environment. The IBM migration software can spot the deviations, but then it is the programmer's responsibility to rewrite the code, Wells said.

So, for a host of other users who have doctored their System/36s and 38s, the IBM migration tools will not be enough. Any modifications to the by-the-IBM-book approach for System/36 or 38 programming will require, as IBM said, someone with programming knowledge.

In Ryder's case, a red flag went up for the subroutines written in assembler that had been incorporated in System/36 programs. Another flagged item was code Ryder had written to enable messaging between RPG-II programs and Cobol programs. The AS/400 did not recognize this code, Wells says.

Furthermore, when Ryder moved hundreds of programs to the AS/400 code, it found that 37 Cobol programs were unsuccessfully compiled. Wells says his experience shows System/36 implementation of Cobol 74 is "much more forgiving" than the AS/400's implementation of the same Cobol. In other words, Ryder programmers had at one time taken some liberties in Cobol programming. Those liberties must now be addressed.

At the beginning of the migration project at Ryder, four staff members and one IBM rep were involved. This month, an AS/400 training program will begin for 60 programmers, according to Wells. Among other things, the programmers will be going back to the errors in the Cobol programs and making the necessary changes.

That's a lot of manpower. Of course, Ryder has a huge suite of applications on the System/36 — altogether, it consists of 1.2 million lines of code.

There are thousands of System/36 and 38 shops that don't have nearly that much code, so they won't require such an army of programmers. But they had best heed IBM's words and have a skilled programmer on hand to help make migration possible.

Hamilton is a *Computerworld* senior writer.

Cincom

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personal computers, he knew it would become a stronger user of departmental or distributed processors, which had a bearing on his DBMS decision.

He said he urged his review committee, which had matured while working in IBM environments, to avoid being captive to any IBM bias. It considered the province's criteria and selected Cincom Systems, Inc.'s Supra over DB2. For one, Tabone said, Cincom's fourth-generation language, Mantis, "allows us to offload development to PCs. That in itself gives the Cincom product a considerable advantage."

Another advantage stemmed from Cincom's ability to field compatible systems across hardware platforms, including Digital Equipment Corp. VAXs as well as mainframes.

IBM is clearly in the driver's seat when it comes to tying its data base manager into the operating system, but, Tabone said, "we're comfortable that Cincom will take advantage of MVS/ESA. There's a lot riding on Supra for Cincom, and we can influence those decisions even more," he said.

Tabone's account, related at the recent Cincom users group meeting, illustrates how Cincom has launched a viable product strategy while marching in the shadow of the industry's dominant power.

By introducing a product just as IBM endorsed the relational approach, Cincom has been able to remain in the race even if it has not exactly kept pace with DB2. A total of 432 copies have been licensed, compared with 2,300 to 2,400 for DB2.

Many of the initial licenses were upgrades to Cincom's existing Total and TIS/XA customers, but in 1987 and this year, 75% to 80% of the sales represent new business, said Thomas McLean, vice-president of marketing.

Life span unclear

In some cases, Supra's position may not be completely secure even where it has been installed. Marlin Brusberg, data base administrator at Rockwell International Corp.'s Golden, Colo., facility, said his firm uses Supra but is also likely to install DB2 to work with engineering design software. When asked which one will be the long-range system, he said, "That's a good question."

Another customer, Martin O'Malley, information services manager at Irish Life Insurance in Dublin, said Supra's referential integrity and Mantis fourth-generation language prompted his company to go with the DBMS instead of DB2 two years ago. "It has the facilities to give us an edge in a very competitive business," he said, and his firm remains committed to Supra.

Several users had scrutinized Cincom's repetitive manufacturing module added to its Control: Manufacturing Release 6.2 package.

James G. Rous, production planning manager at Keeprite, Inc., a refrigeration unit manufacturer in Brantford, Ontario, criticized earlier releases of the Control product. "The support expertise, especially in the field, has to improve," he said. Cincom's consultants "fail to recognize the discipline and culture change" that accompanies the installation of Control, which imposes many restrictions on the manufacturing process, Rous said.

When asked why he was still using Control, Rous replied, "Because it's a fantastic system. It can drive any company into excellent profitability."

Several customers said they had expected Supra for VAX to be closer to general release by this time instead of still in beta testing.

Cooperative

FROM PAGE 19

processing for the most part," said to Ross Altman, marketing vice-president at Multisoft.

In late 1986, Towers Perrin realized that its multivendor computing architecture, spread over five data centers worldwide, was not adequately serving the expanding needs of its 4,000 employees. The company has a number of IBM mainframes, some running MVS with DB2 and CICS and others operating under VM/CMS and SQL/DS. There are Digital Equipment Corp. VAXs and Prime Computer, Inc. minicomputers on the firm's network as well.

Stressed out

Proliferating microcomputers at the time were creating specialized data access requirements beyond what standard micro-to-mainframe links could offer. "The network was showing signs of stress," said G. Theodore Burkett, a principal and manager of data processing and telecommunications at Towers Perrin. "We were connecting more people who needed better access to the corporate data base. We needed better control; security became an issue."

Towers Perrin considered a distributed data processing scheme but was discouraged by prohibitive costs and complexity, Burkett said. The company instead opted for a cooperative processing approach in which personal computers would be used to off-load the mainframe of computing cycles for I/O and processing.

The primary reasons included the fact that micros have faster response times than IBM 3270 terminals and make better use of color and graphics; there is no longer a premium paid for micros vs. 3270 displays; and micros, since they process locally, cost less to operate on a network than interactive terminals, which require constant communication with a mainframe.

Towers Perrin said it chose Superlink because it works with the various networking protocols already in use at the company, which include CCITT X.25, asynchronous, bisynchronous and Synchronous Data Link Control. Moreover, the product is portable, so it can be used in operating environments such as MVS and VM/CMS.

"We could migrate our work where it fits best," Burkett said.

The consulting firm's two initial cooperative projects were aimed at replacing aging interactive applications within the human resources and finance departments. "These are areas where there's lots of paper; information had to be rekeyed," noted John McElroy, a Towers Perrin principal.

Earlier this month, the company brought up its first human resource system developed with Superlink and ran its first cooperative processing application to handle payroll. It encountered problems typical of new systems "but little of it had to do with cooperative processing," McElroy said.

Compass, which is jointly owned by Hilton Hotels Corp. and Budget Rent-A-Car Corp., recently reworked Hilton's hotel reservation system. "Corporate marketing and sales need access to room inventory, while the local sales staff needs to have an accurate picture of what is available at their hotels," explained F. Douglas Brown, Compass's director of technical services.

Talk about room service

Compass decided to keep the room inventory data base on its IBM 3080-class mainframe and provide access via its worldwide network of micros dispersed around the globe. This has enabled users to not only track room availability and events at specific hotels but also access electronic mail services and download applications from multiple mainframes, Brown said.

There are already 150 standalone micros on the network. Compass said it expects 650 more micros — many linked together using IBM's Token-Ring network — to come on-line by the end of 1989. "Response time is six seconds or less for 90% of all transactions," Brown noted.

"Being a mainframe bigot, when I first saw this project, I said 'No way will this work.' Now, I'm a believer," he concluded.

CAD/CAM

FROM PAGE 19

to them as it is [to others]."

Among the users involved in mechanical drafting, 31% said they buy their systems from Natick, Mass.-based Prime Computer, Inc. The company's drafting-niche primacy is based largely on products developed by Prime's Computervision division, according to the report. Prime acquired Computervision in a hostile takeover last year.

The largest single application is Computervision's Cadds software, which runs on proprietary Computervision computers as well as on Computervision's licensed version of Sun Microsystems, Inc. workstations, the report said.

Microcadds, a Computervision entry for IBM Personal Computers, took second place in the drafting sweepstakes, eclipsing sales of IBM's own PC-based offering, Cadwrite, which accounted for a mere 0.17% of the systems mentioned in the survey.

The second most relied-upon vendor in mechanical drafting was Sausalito, Calif.-based Autodesk, Inc., fueled into prominence by a single product, Autocad, which is used by 25% of the surveyed companies involved in mechanical drafting.

Catia, which is a mainframe-based package from French manufacturer Dassault Systems, and IBM's Cadam tied for third-place honors.

In the 3-D design and modeling category, Cadds ranked first, with the continuing ascendancy of Microcadds on the personal computer, helping to secure an overall first-place position for Prime. Cadam and Catia split honors again, this time for second place, with the Dassault entry slightly edging IBM's.

Prime also led in the facility layout, numerically controlled tool programming and finite element modeling application categories as well as in the most fragmented of all the surveyed niches, printed-circuit layout systems.

Overall, the survey showed CAD/CAM/CAE markets to be a particularly fragmented bunch. Nearly 44% of the numerical control software systems in use at surveyed sites came from vendors that were mentioned less than 3% of the time, according to the report.

The profile that emerged from the report categorized CAD/CAM/CAE users as:

- **Loyal.** At least 70% of respondents in each application area expressed plans to expand by buying more software from their current vendors.
- **Pragmatic.** Those who did intend to switch vendors generally cited performance issues rather than cost or vendor stability as the principal reason.
- **Impervious to market hype.** Less than half the electronic designers surveyed were using electronic simulation tools.

NEW PRODUCTS

Systems software

A test-data capture and playback package developed for the Unix operating system has been announced by **Software Research, Inc.**

The **Capbak/Unix** system reportedly lets the tester construct the precise behavior desired and allows for detailed studies of any erroneous program function.

The system consists of six components, including an interactive menu program and a record command. A program that captures keystrokes when pipelined to an application without a log-in is also included.

Capbak/Unix costs $3,300 for a single-CPU license and is currently available for Sun Microsystems, Inc.'s Sun workstations as well as NCR Corp.'s Tower series.

Software Research, 625 3rd St., San Francisco, Calif. 94107. 415-957-1441.

Mortice Kern Systems, Inc. has expanded its entry in the Unix software market with several products and enhanced capabilites.

Release 2.3 of **MKS Toolkit** reportedly provides more than 115 AT&T Unix System V-compatible commands designed to run on IBM Personal Computers, Personal System/2s and compatible systems. DOS 2.0 or higher is required for operation. A hard disk is recommended. MKS Toolkit 2.3 costs $169.

MKS Trilogy is said to provide Xenix and Microport Systems, Inc. Microport users with three replacement utilities: a programmable user interface, a report generator and data retrieval tool and file encryption capabilities. The package runs under Unix System V, the Santa Cruz Operation, Inc.'s SCO Xenix-286 or Microport System V/AT and costs $119.

The vendor has also ported the **MKS Revision Control System** to the Xenix and Microport environments. The product reportedly allows programmers, systems administrators, project managers and software librarians to control and track revised versions of any ASCII text file. The product costs $395.

Mortice Kern Systems, 35 King St. N., Waterloo, Ont., Canada N2J 2W9. 519-884-2251.

Applications packages

Pansophic Systems, Inc. has added the **Forecasting Workbench** module to its Pansophic Manufacturing/38 (PM/38) manufacturing control software system.

The module allows users to create, monitor and enhance material and production forecasts from a single interactive screen, the vendor said. Forecasting Workbench consists of two major applications, Sales Forecasting and Inventory Management, that supply a significant variety of forecasting and analytical techniques. The software is specifically designed for IBM System/38 users.

The Forecasting Workbench module has an introductory price of $15,000. Standard pricing is $19,500 for users of PM/38 software and $24,000 for a standalone purchase.

Pansophic Systems, 709 Enterprise Drive, Oak Brook, Ill. 60521. 312-572-6000.

Infodata Systems, Inc. has announced the Inquire/Text **Office Systems Interface**. The product is based on a combination of Inquire/Text's text management software and high-fidelity translation technology provided under a sublicensing agreement with **Soft-Switch, Inc.** in Wayne, Pa.

The Office Systems Interface is an optional feature of Inquire/Text and reportedly allows documents created on a variety of word processing systems to be stored in a centrally shared text data base.

Documents are stored in revisable form and may be downloaded to the originating word processor, or to another word processing system, for editing.

The product offers support for Wang Laboratories, Inc.'s VS and OIS systems, Ashton-Tate Corp.'s Multimate package and IBM's Displaywrite 2, 3 and 4, 370 and other Document Content Architecture-compatible word processing packages.

The product costs from $25,000.

Infodata, Suite 700, 5205 Leesburg Pike, Falls Church, Va. 22041. 800-336-4939.

A purchase order system that was developed specifically for Digital Equipment Corp. VAX computers has been introduced by **Ross Systems, Inc.**

Called **MAPS/PO**, the system reportedly allows companies to manage purchases without requiring a bill of materials or inventory.

Features include receipts processing, requisition processing, a vendor master file and vendor and buyer analysis capabilities.

The system may also be utilized for inquiries and reports.

All functions are available through a menu-driven interface, and the software can be integrated with Ross Systems' accounts payable packages as well as other VAX-based accounts payable systems, the vendor said.

MAPS/PO costs $25,000 and up, depending on CPU.

Ross Systems, 1860 Embarcadero Road, Palo Alto, Calif. 94303. 415-856-1100.

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Utilities

A full-text, on-line information retrieval system for Wang Laboratories, Inc. VS computers has been announced by **Kwic Software, Inc.**

Called **Kwic-File**, the product is a multiuser program that provides password security in addition to the Wang system security. The menu-driven system is especially suited for applications such as litigation support, contract administration, personnel selection and other areas in which large quantities of documents require intensive retrieval capabilities.

An optional version, **Kwic-File 2**, can additionally perform search requests using proximity connectors.

Kwic-File and Kwic-File 2 cost $10,000 and $15,000, respectively.

Kwic Software, Suite 600, 7 Burlington Sq., Burlington, Vt. 05401. 802-658-7830.

Interactive Software Systems, Inc. has enhanced the **User Data Management System**, its data management product, to provide support for Digital Equipment Corp.'s RDB and VAX-DBMS environments. The product is said to be capable of accessing and joining up to 32 files in a relational data view, with both inner and outer joins.

With the upgrade, the product offers support for DEC's RMS and Relational Technology, Inc.'s Ingres.

User Data Management System's price ranges from $2,500 to $15,000, depending on configuration.

Interactive Software, Suite 2125, 7175 W. Jefferson Ave., Denver, Colo. 80235. 800-962-8367.

A print distribution utility for Hewlett-Packard Co. 3000 users has been announced by **O'Pin Systems**.

Called **Reveal**, the package permits users to send printable reports to any system terminal, personal computer, spooled printer or attached local printer. The user may elect to print an entire report or a specified page, and reports may be indexed for on-line access.

Standard first-copy pricing for Reveal starts at $900.

O'Pin Systems, 8540 W. 135th St., Apple Valley, Minn. 55124. 612-432-5602.

Data base management systems

Programart in Cambridge, Mass., has announced an application tuning project for IBM DB2 users. The product, **Strobe/DB2**, functions as a DB2 monitor that attributes CPU use to user-initiated DB2 queries.

The program also identifies DB2 tables that degrade performance when accessed. Strobe/DB2 reportedly measures DB2 performance in IBM CICS, IMS, TSO and batch environments.

Strobe/DB2 costs from $48,900.

Programart, 1280 Massachusetts Ave., Cambridge, Mass. 02138. 617-661-3020.

Verity, Inc., a document data base managment company, has introduced a document retrieval software system.

Called **Topic**, the package reportedly runs in a distributed environment under Microsoft Corp.'s MS-DOS on personal computers, under Unix on Sun Microsystems, Inc. workstations and under VMS on Digital Equipment Corp. VAX computers. The product replaces standard word-oriented searches with a more sophisticated, concept-based retrieval system, the vendor said. For each user query, Topic computes the degree of relevance to every document in a data base and presents the documents sorted by their relative scores.

On a network, Topic consists of server software that costs $15,000 plus software for each networked station, ranging from $695 per MS-DOS system to $2,500 for a Sun bit-mapped workstation. On a multiuser system, Topic costs $39,500 for a system license fee.

Verity, 1550 Plymouth St., Mountain View, Calif. 94043. 415-960-7600.

Development tools

Application Development Systems, Inc. has announced the availability of **Xpediter/Ros**, an interactive testing and debugging tool for Cobol programmers using the Roscoe Online Development System from Applied Data Research, Inc.

The product reportedly supports multiple interactive users within a single Roscoe region and uses Roscoe's Extended Time Sharing Option for terminal communications. Xpediter/Ros also includes the capability to submit Roscoe batch tests to an IBM MVS address space.

The product costs from $37,500.

Application Development Systems, 6840 78th Ave. N., Minneapolis, Minn. 55445. 612-560-8633.

Precision Visuals, Inc. has announced **GFX-4000**, a graphics software tool aimed at the technical and engineering workstation markets. The product runs on the Digital Equipment Corp. Vaxstation 2000 platform under DEC's VMS and VWS, a windows management system. It was designed for use as the graphics programming library for engineering, scientific and computer-aided design applications, the vendor said.

The software includes the Programmer's Hierarchical Interactive Graphics System (PHIGS) with extensions and enhancements to improve performance, the vendor said. Extensions to PHIGS include multiple workstation graphics windows from a single application and selective viewing update.

GFX-4000 costs $3,500 for a single CPU and includes full media and documentation. Training and support are also provided.

Precision Visuals, 6260 Lookout Road, Boulder, Colo. 80301. 303-530-9000.

Exsys, Inc. has released **Exsys Professional**, a product that reportedly provides expert system development. The system has been designed around the original Exsys Expert System Shell and is for use in the Microsoft Corp. MS-DOS, Digital Equipment Corp. VAX/VMS and Unix operating environments.

Features include a command language, access to data in Ashton-Tate Corp.'s Dbase III files, a rule compiler and multilevel password protection. The product is also available in Japanese for MS-DOS and Unix machines.

Exsys Professional costs $795.

Exsys, P.O. Box 11247, Albuquerque, N.M. 87192. 505-256-8356.

A product designed to streamline the debugging or proving-out of the machine tape before the first production run has been announced by **Elcam, Inc.**

Called **Desktop Prove-Out,** the system runs on workstations from Apollo Computer, Inc., Sun Microsystems, Inc. and Digital Equipment Corp.

According to the vendor, the system includes an advanced machining module that graphically represents the true five-axis tool path that will occur on the machine tool. Desktop Prove-Out is expandable and can be integrated with any automatic or manual programming method. It will be sold in modular form.

Desktop Prove-Out costs $8,995 for the base module supporting up to three axes of simultaneous machining.

The advanced machining module costs $6,995.

Elcam, 275 Wyman St., Waltham, Mass. 02154. 800-352-1662.

HONG KONG SOFTWARE HOUSE

FOR SALE

A Hong Kong Group of Companies is reorganising to expand its electronic components companies on a world-wide basis. It has decided to divest it's subsidiary software house so as to allow Group management to concentrate on the components industry.

The software house specialises in VAX and PC applications for the distribution, trading and manufacturing sectors. It has built a library of 21 applications software products with up to 22 users in Hong Kong. Fifteen of the products are bi-lingual. (i.e. offer both English and Chinese character I/O)

The software house was incoporated in Feb 85 in Hong Kong with substantial orders-in-hand from the parent at the time of inception.

An independent consultants valuation of the going concern is US$500,000 based on South East Asia generally accepted business practice.

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MICRO BITS

Douglas Barney

IBM: Auto sales next?

IBM learns lesson from car dealers. Although IBMers never wear plaid and rarely don polyester, the company is starting to act a lot like a new-car dealership. Take the trade-in policy for the Personal System/2 as a case in point. You, the customer, give up your reliable 30M-byte Personal Computer AT, and they'll give you something like $875 toward the purchase of a brand spanking new PS/2. Heck, I'll give you $900 for the thing. (Just kidding.)

As with most trade-ins, someone ends up taking your old machine, doubling the price and selling it to some other chump. But at least car dealerships sometimes give a good price.

Of course, if you like getting a new machine every year or two and don't mind losing thousands of dollars on the trade-in, IBM has just the deal for you.

"Look-and-feel" furor. These days, software firms are afraid to have their products look and feel like anyone else's. What they are really afraid of is getting whacked with a vicious lawsuit that will cast doubts on

Continued on page 26

Spreadsheet tactics diverge

BY DOUGLAS BARNEY
CW STAFF

The top players in the spreadsheet marketplace share one characteristic: an almost visceral desire to dominate. But each of these vendors has radically different strategies that guide its quest for paying customers.

For Lotus Development Corp., the current spreadsheet leader beseiged by a bevy of upstarts, the strategy is simple. The company hopes to make 1-2-3 the king of distributed data bases by running compatibly on all major hardware platforms from IBM mainframes right on down to low-end micros.

This way, work sheets can be shared, terminals can become spreadsheet stations, and overall training costs are reduced. To achieve this goal, assembler-based 1-2-3 is being rewritten in C for portability.

Also, Lotus is pushing its spreadsheet as the center of a data-strewn universe with Blueprint, an interface that allows Lotus applications to easily grab data from a variety of data base software programs. And the firm continues its push to establish 1-2-3 as a sort of operating environment. Here, the latest volley is the announcement of Lotus Extended Applications Facility, a high-level language for developing custom applications that use 1-2-3 as their base.

Last but not least is enhancing 1-2-3 itself with linked spreadsheets, three-dimensional spreadsheets and, later on, a graphical version of 1-2-3.

Different strategies

Lotus's newest and toughest rivals, Microsoft Corp. and Borland International, are attacking the 1-2-3 beachhead with dramatically different styles. For Microsoft, the future lies with high-resolution graphics, high-powered machines and mice. For those unwilling to wait, the future is now, and Excel for the PC is how users get there.

Excel, originally an Apple Computer, Inc. Macintosh product, now runs on an IBM Personal Computer and is more visually stunning than ever. Microsoft officials have said they firmly believe the Windows interface, and its OS/2 Presentation Manager follow-on, will become the standard interface over the next several years. Excel will be there whenever users want to make that move.

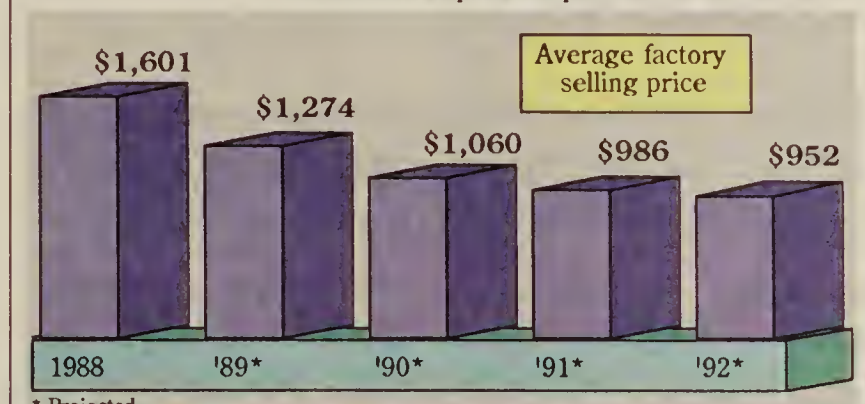
Unlike Lotus, Microsoft has not sketched a multiplatform future for Excel, other than continuing to run on the Macintosh

Continued on page 27

Data View

Scanner prices slide

Shipments for low-end document scanners are expected to rise more than 34% annually, but revenue growth will be stifled by simultaneous price drops



* Projected

INFORMATION PROVIDED BY VENTURE DEVELOPMENT CORP.
CW CHART

Gupta serves OS/2 DBMS

MENLO PARK, Calif. — Users looking for an OS/2-based data base server may wait until later this year, or perhaps until 1989, for SQL Server from Microsoft Corp., Sybase, Inc. and Ashton-Tate Corp. Or in the middle of next year, they could buy the server version of OS/2 Extended Edition.

If that is just not soon enough, then Gupta Technologies, Inc. may have an answer. Gupta an-

Continued on page 27

Go-getters get finance program

BY DOUGLAS BARNEY
CW STAFF

NATICK, Mass. — If you end up liking Ronstadt's Financials, then thank the Lord — Lord Publishing, Inc., that is.

Unlike most spreadsheet programs, Ronstadt's Financials is aimed especially at entrepreneurs. The financial budgeting program builds on the knowledge of its author, Robert Ronstadt, who has written extensively on entrepreneurial issues.

With Ronstadt's, Lord hopes to go spreadsheets one better. "In 1985, we started to see a lot of add-in products that tried to solve the problem with spreadsheets. The real problem is that a spreadsheet is a programming environment and might not be the proper tool for business analysts and business owners," said Paul C. Conover, Lord's vice-president of sales and marketing.

Enter Ronstadt's. While observers expect it to compete

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Inside

- Pratt & Whitney's Goldfarb defines MIS, micro managers. Page 25.
- Intel's Inboard 386/PC expands options. Page 25.
- Macola enhances software to support OS/2. Page 27.

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SMALL TALK

Julie Pitta

The Jazz Age over at Lotus

At a rowdy bash at an airplane hangar in Las Vegas in the fall of 1985, Lotus introduced Jazz, its first product for Apple's Macintosh.

Nearly three years later, Lotus hosted a more subdued affair at its San Francisco sales office to celebrate its re-entry into the Mac market with the announcement of Modern Jazz.

Much has happened since 1985, when then-Apple Chairman Steven Jobs and former Lotus Chairman Mitch Kapor toasted their new partnership, an alliance that Apple hoped would help it woo corporate users and Lotus thought would provide it with a lucrative stake within a new hardware platform.

It was not to be. A frustrated Apple watched as Jazz became one of Lotus's more celebrated flops. Jazz, an integrated spreadsheet, was bug-ridden, lacked a macro programming language and, at $595, was considered overpriced. At last January's Modern Jazz launch party, Apple Sales Vice-President Charles Boesenberg and Lotus President Jim Manzi carefully steered their remarks to focus on the future rather than the past.

Last week concluded another chapter in what has been a rocky relationship between the two companies. Lotus announced it would dump Modern Jazz, which had already suffered a series of delays. And while Lotus struggled to release Modern Jazz, Microsoft strengthened its hold on the Mac spreadsheet market with Excel.

Continued on page 26

Pratt & Whitney's Goldfarb tees off on MIS, PS/2, OS/2 and other acronyms

For Ron Goldfarb, a teaching degree in history from the City College in New York was not a handicap but a help in dealing with end-user issues.

IN PERSON

"It turned out to be a blessing, because the users I was dealing with could understand me. I was speaking English to them," says Goldfarb, manager of office automation at Pratt & Whitney Administration, an East Hartford, Conn., division of United Technologies Corp.

Soon after college, Goldfarb found himself at Pratt & Whitney's financial department. In 1980, he helped develop the aircraft engine manufacturer's office automation function and later received what he says was the first package Lotus Development Corp. ever shipped. Ironically, the package was not 1-2-3 but an Apple Computer, Inc. Apple II product called The Executive Briefing System, which was dropped by Lotus a few months after the firm began.

Outspoken and articulate,

Goldfarb *updates "What's hot, what's not"*

Goldfarb is in charge of managing more than 200 microcomputers and regularly prepares a "What's hot, what's not" presentation for the corporation, outlining the best and worst the microcomputer industry currently has to offer.

Computerworld West Coast correspondent James A. Martin talked to Goldfarb about IBM's Personal System/2, the Micro Channel, OS/2, Unix and Goldfarb's bold views concerning the differences between MIS and micro managers.

What hardware platforms have you standardized on?

I hate the word standardized. It sounds like you have to do everything a certain way, and our users are not all doing the same thing. In general, I won't buy anything less than a 386. That's the platform for the next five years.

Machines aside, it's important to remember that with PCs, a big revolution has occurred. In the old days, people had to bend to the machine. If you had a mainframe, you had to work the way the machine did. The revolution is not that there are powerful desktop computers, but that any schmuck can use a computer and that you don't have to be a computer science kind of person.

Are you realizing any benefits now from the Micro Channel architecture?

No, of course not. *The Wall Street Journal* ran a good story recently comparing the Micro Channel with MFG, the secret ingredient in Colgate [toothpaste] that nobody knows anything about. Some people have bought into the FUD — fear, uncertainty and doubt — that IBM has tried to spread with the Micro Channel, that if you don't have it, your company will go down the tubes. But the benefits of the Micro Channel really remain to be seen.

The PS/2 announcements were made over one year ago. Usually, I have an opinion on a product announcement the next day. Like the [IBM] 3270 PC, I knew it was a pig right from the start. But a year later, with the PS/2, I'm still not really sure what to think about it.

How does the micro department fit into the overall MIS department at your company?

We don't fit in. The Pratt &

Continued on page 26

Hall of fame PCs at bat

BY STEPHEN JONES
CW STAFF

COOPERSTOWN, N.Y. — Curious to know how many consecutive games Pete Rose hit safely in, or the lifetime earned run average of Cy Young? How about the most errors committed by a first baseman in a single inning? From the famous to the obscure, The National Baseball Hall of Fame and Museum has it all.

This bastion of America's favorite pastime is a source of what many a baseball fanatic considers to be the lifeblood of the game: Statistics.

In addition to a collection of the game's most famous balls and bats, the hall of fame is a storehouse of baseball information. The hall's data bases include everything from general data on a particular baseball era to how many strikeouts were thrown in the 1975 All-Star game.

Visitors here can quite literally get their hands on this information at personal computer-based interactive exhibits. Powered by two IBM Personal Computer ATs, each exhibit is an 8-ft-tall kiosk that sports IBM's Infowindow touch-screen system.

Continued on page 26

Top sellers

Software: June 20-24

1	Lotus's 1-2-3
2	Wordperfect Corp.'s Wordperfect
3	Fifth Generation Systems' Fastback Plus
4	Ashton-Tate's Multimate Advantage II
5	Software Publishing's Harvard Graphics
6	Crosstalk Communications' Crosstalk XVI
7	Lotus's Symphony
8	IBM's Displaywrite 4
9	Ashton-Tate's Dbase III Plus
10	Software Publishing's Professional Write

INFORMATION PROVIDED BY CORPORATE SOFTWARE, INC.
CW CHART

SOFT TIPS

How to keep color

If you have ever noticed that you lose the color on a color software application after exiting Ashton-Tate Corp.'s Multimate, you are not alone. The problem occurs because Multimate sends a mode command, BW80, when the exit program is executed.

To fix this problem, type: MODE CO80 after exiting Multimate. This will bring the color back to the other software application. This work-around is not limited to Multimate Advantage II, either. Losing screen colors when exiting a software product occurs with many other packages, and the work-around will function with these as well.

Information provided by Corporate Software, Inc., a Westwood, Mass.-based software reseller.

New machine or board? Cost dictates

BY JAMES A. MARTIN
CW STAFF

Question: Why pay $5,000 or more for a microcomputer based on Intel Corp.'s 80386 microprocessor when you can buy an IBM Personal Computer or PC XT and beef it up with a 386 add-in board for half the price?

Depending on who you talk to, there are different answers. But for some users, the answer is obvious: Why, indeed?

Most agree that the 80386 is *the* personal computer platform for the next several years. But the 386 price tags have prohibited many smaller businesses, corporate departments and home users from ditching older PCs and PC XTs.

Last fall, Intel's Personal Computer Enhancement Operation released the Inboard 386/PC, enabling users to, in essence, trade in their existing PCs and PC XTs for a 16-MHz 386 without the high price. Inboard is an add-in card offering 1M byte of random-access memory with another 2M bytes available on a daughter card. The Inboard

Inboard 386/PC

Price: $1,295

- 16-MHz processor speed
- 1M byte of on-board 32-bit memory
- Up to 2M bytes of add-in memory available through daughtercards
- Supports Intel 80387 math co-processor
- Supports future 32-bit software

386/PC reportedly increases the performance of PCs, PC XTs and compatibles up to 10 times. The board is a follow-up to Intel's Inboard, a 386 accelerator card for

Continued on page 26

Barney

FROM PAGE 23

much-coveted products.

Like many, Borland International is a bit paranoid. The firm, long known for its boldness, is now going out of its way to tell the world that despite the use of chameleon interfaces, its products do not look or feel like competitors' products.

This is a subtle shift from the early positioning of Borland's Quattro spreadsheet and Sprint word processor, both of which were pitched as being configurable to be like products users were already used to. This was to be achieved through the use of "alternative user interfaces." Of course, that was before the lawsuits came.

Although the products are unchanged, today Borland focuses on command compatibility and downplays the interface issue. But instead of marketing people changing the terminology and positioning of products, we wish the whole look-and-feel debacle would blow away.

Vaporware dilemma. In some ways, you really have to applaud Lotus Senior Vice-President Frank King's decision not to preannounce products. Fewer expectations will be built and crushed by the cycle of announce and delay.

But there's one problem with the strategy: What should Lotus do about all the products it has preannounced but has not shipped? In seemingly blind obedience to the no-preannouncement policy, Lotus has almost entirely stopped talking about already-announced products.

It seems a mite absurd to announce a product, then refuse to provide a steady stream of information about features, pricing, hardware requirements and development schedules. Customers planning an applications strategy don't have a whole lot to go on, except the memories of vague statements made a year or more ago.

Sticking to direct guns. Computer Associates has a rare approach to selling microcomputer software. The firm sells direct and offers great savings for firms that buy lots of software.

And that ain't going to change anytime soon, despite the firm's taking another shot at the tough retail channel. In fact, most of Computer Associates' micro successes — GE, J. C. Penney, Ernst & Whinney — have come from selling direct and selling cheap.

But cheap and direct don't always overcome expensive and indirect. In fact, Computer Associates' biggest product, Supercalc, has bumped against the 1-2-3 wall for years. Now the company is hoping a new version, along with the help of retailers and its continuing offer of site licenses, will blast a few holes in the 1-2-3 fortress.

Only time will tell whether Computer Associates' perseverance will pay off, but corporate users at the recent PC Expo show in New York gave the product a thumbs-up. They applauded the increased compatibility with 1-2-3, built-in network support and the ability to have up to 256 worksheets in memory. I don't even have 256 phone numbers in memory.

Barney is *Computerworld*'s senior editor, microcomputing.

PCs at bat

FROM PAGE 25

By touching the screen at the "Hall of Famers" exhibit, visitors can access a data base and pull up a video of Ty Cobb making one of his famous cleat-first slides into second base, his yearly statistics or his biography. Pressing another segment displays a bar chart tailored to reflect a batter's crushing average or a pitcher's hot knuckleball.

The exhibit portrays the lives and times of a total of 199 legendary boys of summer. The computer-based systems have been a hit with visitors since they were first installed in 1986.

System has fans

"The exhibits are generating a tremendous response — by their nature, baseball fans are statistically oriented," said Patrick Rooney, manager of information systems at the hall of fame. Rooney's background includes all the essentials for this MIS job: He is a former computer instructor and was so attracted to baseball as a boy that he spent much of his youth working at New York's Polo Grounds and Yankee Stadium.

Other attractions at the hall include the "League Leaders" exhibit, which is based on a data base containing 1,230 different record categories covering the careers of more than 1,000 current and retired big-leaguers. The data also contains many of baseball's vital statistics.

Because it is a nonprofit organization, the hall of fame receives most of its equipment on a loan basis from IBM. In addition to the IBM computers, each exhibit uses a Pioneer Electronics Corp. LD-6200 laser disk to store photos of players.

Rooney said the equipment has performed like an all-star, but even the best system has trouble standing up to jabs and slaps 12 hours a day, seven days a week — the hall of fame is closed only three days a year.

The hall recently added an IBM Personal System/2 Model 80 to its starting rotation. The PS/2 is being used to record the thousands of artifacts donated to the hall's museum and library during the last 49 years. The information is currently filed away on hard copy.

Goldfarb

FROM PAGE 25

Whitney Administration corporate office doesn't have a mainframe or DP shop, they have me. The major divisions of our parent company, United Technologies Corp., such as Otis Elevator and Carrier Air Conditioner , do have DP shops and MIS people who have taken over the functions of microcomputing. I'm one of the few holdouts who really makes the decisions on micros and is not part of MIS.

Around 1984, MIS noticed that PCs were not going away and decided they needed to take them over to lead. I eluded that by being very responsive to the users. The MIS guys, because of their mainframe mentality, had not been real responsive to the PC end users.

Because we're small, we can move fast. When MIS decides on a computer, they buy 500 and take a long time on evaluations. It's like an 18-wheeler vs. a small car — both have their place. An 18-wheeler is great if you want to carry tons of steel long distances, but if want to run to the store to get a loaf of bread, you take the car.

What do you think of OS/2?

We're waiting for the Presentation Manager like everyone else. The joke going around Silicon Valley is that IBM now stands for "I'm Building a Macintosh." If you're starting from scratch as a user, then an object-oriented interface is better than a text-oriented one. But since so many people are used to text, then it won't make that much difference now. The multitasking aspects get us excited — being able to break the 640K RAM barrier and so forth — but we're all waiting for the Presentation Manager to see if it will truly be multitasking.

How about Unix? Does it deserve more serious consideration now?

Unless you are a scientist or an engineer, you won't get real excited about it. What good is an operating system without applications? Of the two packages that run under Unix, neither are any good. As a nontechnical person, I don't get excited about operating systems.

What kind of connectivity strategy do you have for linking PCs together and with other systems?

People have been saying this will be the year of the LAN since 1981, and it might actually be that year now. At Pratt we use Profs, IBM's mainframe-based electronic mail system, so many of our PCs are host-connected. We have some IBM 3090s in a back room somewhere that I've never seen, and many of our PCs are connected to the E-mail via IBM's connectivity boards.

We are just now starting to fool with LANs, to see if there are some advantages over what we call "Sneakernet," where you run over to someone else's PC and hand them a disk to exchange information. I haven't wanted to spend $20,000 just to avoid getting up and walking next door. But we are reconsidering LANs and have a pilot program going.

What kind of emerging technologies interest you the most?

I seem to be the biggest supporter of Video Show, which is a hardware and software combination from General Parametrics Corp. in Berkeley, Calif. It's a high-resolution graphics generator. The software runs on a PC, you save the charts on a disk, then you put the disk into Video Show and it runs a slide show on a large monitor or projection system.

We use computers to analyze stuff, but then what? You've got to communicate your conclusions, decisions and results, and to do that, you have to use graphics. It's a perfect follow-on to what we've been doing up until now.

Cost dictates

FROM PAGE 25

the PC AT.

Intel's board is not the only upgrade option around. Quadram Corp. released its 386XT board at about the same time Intel unveiled Inboard, yet the Quadram product offers up to 8M bytes of add-on memory compared with Inboard's 2M bytes. Users might also want to consider new PCs based on Intel's new 80386SX microprocessor, which offers 386 software compatibility at 80286 system prices.

Drawbacks

Although Inboard rates high among its users, others should be forewarned that the board's hardware compatibility is limited. Aside from IBM PCs, the Inboard 386/PC can run on Tandy Corp.'s 1200HD and Compaq Computer Corp.'s Portable and Portable Plus, and that is it. In addition, the board's original retail price of $995 was increased recently by $300 because of the shortage of dynamic RAM chips.

Nonetheless, Inboard enabled the U.S. Bank of Oregon, a subsidiary of U.S. Bancorp in Portland, Ore., to bypass the 286 altogether.

"We saw the 286 as short term, so we kept our XT clones for some time, waiting for the 386 to come of age," said Richard Botterill, assistant vice-president at the bank. The bank had more than 400 PC XT compatibles and needed to upgrade at least two dozen of those to handle increased work loads.

Pitta

FROM PAGE 25

Now, Lotus says it will concentrate its efforts on 1-2-3 for the Macintosh. No release date has been set.

The death of Modern Jazz allows Lotus to start fresh with Apple, Lotus officials say. While admitting that Lotus has disappointed Apple in the past, the former denies that any lingering bitterness exists between the companies. Apple officials declined to comment on the companies' relationship.

"They're disappointed by the decision; they're looking at it very pragmatically," says David O'Connor, marketing manager at Lotus's Macintosh group. "But they're being very supportive of us focusing on 1-2-3 for the Mac."

The low point in the companies' relationship came after the release of Jazz, when the product became the focal point of widespread criticism and, as a result, faltering sales. "The reaction to Jazz didn't help our relationship with Apple," O'Connor concedes.

"There was a lot of disappointment. No one at Apple ever said, 'Get your act together.' That wouldn't be appropriate for Apple to tell Lotus. People might have thought it, but they wouldn't say it," he says.

Apple's softening toward Lotus — despite another failed product — is likely the result of its independence. As the Mac gained popularity, Apple has gained the attention of a number of third-party software developers and is no longer dependent on any one of them.

"Apple can treat Lotus as just another vendor now," says Bill Higgs, an industry analyst at Cupertino, Calif., market research firm Infocorp. "Three years ago, Apple very badly needed new applications to sell the Macintosh, particularly in business environments. That's not the case now."

Pitta is *Computerworld*'s West Coast senior correspondent.

Gupta

FROM PAGE 23

nounced last week that it is shipping an OS/2 version of SQLbase, a server product that originally ran under Microsoft Corp.'s MS-DOS.

Same difference?

According to Gupta's Rod Zimmerman, users need not be concerned about mixing OS/2 servers with MS-DOS servers or about mixing MS-DOS workstations with an OS/2 server. "Both servers run identically," said Zimmerman, product marketing manager.

Gupta's OS/2 Server will reportedly be customized and resold by Lotus Development Corp. as Lotus/DBMS, a product that most observers expect Lotus to ship next year.

Unlike Lotus's approach, which will be to target end users, Gupta will continue to focus on data base administrators and developers. Part of that push is support for C and Cobol; another is SQLwindows, a data base development system that runs under Microsoft Windows.

A multiuser-licensed version of the SQLbase Software Development Kit costs $2,995, and a single-user version costs $1,295.

SQLwindows Development Kits cost $1,295, a separate Application Design Module costs $595, and applications can be compiled and distributed for $150 per workstation.

Go-getters

FROM PAGE 23

against conventional spreadsheets, the product departs almost entirely from the spreadsheet paradigm. Instead of providing blank rows and columns, Ronstadt's has knowledge bases and expertise, both of which help managers assess the impact of financial decisions, built in.

The package comes with models that cover real estate, retail and wholesale businesses, general contracting, manufacturing and professional services. Ronstadt's also provides a general-purpose library model and a standard library for customized scenarios.

With Ronstadt's, a user fills in the data once and can get a variety of results, including best- and worst-case scenarios, balance sheets, income statements, projected cash flows, detailed budgets, break-evens and profitability measures.

The product, available directly from Lord, will sell for $399 through Aug. 31. Ronstadt's requires an IBM Personal Computer or compatible with a hard disk drive and 640K bytes of random-access memory.

Tactics

FROM PAGE 23

and under its MS-DOS and making a move to the Presentation Manager sometime next year. But like 1-2-3, Excel is written in C, so portability is a real possibility.

Brash Borland appears to adhere to Lotus's original philosophy: Write the product in assembler to make it as small and fast as possible. Borland President Philippe Kahn simply does not appear to believe in writing one product for multiple architectures. "That is what we call the lowest common denominator. We don't buy that. A user of a given machine wants the best possible product for the machine on the machines," Kahn said.

In fact, a gleeful Kahn sent an electronic message to nearly 70 computer journalists after Lotus announced a six-month delay in the C-based 1-2-3 Release 3. In the message, Kahn chided Lotus for not continuing to write 1-2-3 in assembler.

Kahn also accused Microsoft of falling into the porting trap. "Microsoft has the same problem with Excel on the PC and Excel on the Mac. Excel is good on the Mac, but is not the best product on the PC. In fact, it doesn't run on most PCs," he said.

So what will Borland do to broaden the number of machines its Quattro will run on? Kahn appears to know but is not saying. "We haven't announced a Quattro strategy for non-Intel architectures. We will announce that in 1988," Kahn said.

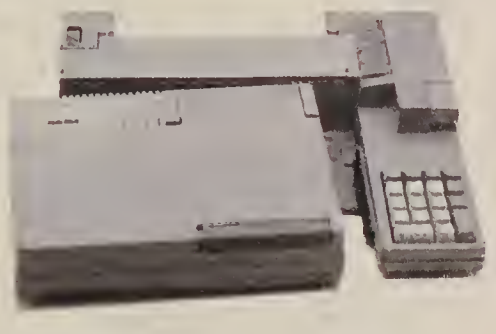
TI's new TravelMate™ LT220. It's the closest thing to carrying a VAX™ in your briefcase.

Texas Instruments introduces the LT220 lap-top terminal — the next best thing to being there when you need remote access to your company's VAX.

The LT220 provides full VT220 emulation in a 4.8-lb. package, without sacrificing functionality. It features a 25-line screen that's easy to read. It even has a full-function keyboard like the one on a VT220.

The terminal communicates at 1,200 or 2,400 bps through one of its optional internal modems. For hard copy, just slide the LT220 into one of its optional cradles to add an ink-jet or thermal printer.

New credit-card-sized memory cards



let you create, update and store files. They're also handy for programming the LT220 to your specific application.

Like its Silent 700™ predecessors, the LT220 sets new standards for portability, durability and reliability. All of which makes it the perfect tool for anyone who's ever wished for a VAX in their briefcase. In short, this may be the best little terminal in the world.

So go ahead. Take the first step toward improving your productivity today. Call Texas Instruments for more information or to arrange a demonstration of the LT220. **Phone toll-free, 1-800-527-3500.**

TEXAS INSTRUMENTS

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NEW PRODUCTS

Software applications packages

Macola, Inc. has enhanced its software for accounting, distribution and manufacturing applications in an effort to support the OS/2 environment.

Version 3.1 is written in Micro Focus Cobol II, which has been selected by IBM as its Systems Application Architecture standard Cobol for OS/2 and the Personal System/2. The nine-module system includes increased index-file performance over previous versions.

Macola 3.1 costs from $795 to $895 per module.

Macola, 196 S. Main St., Marion, Ohio 43302. 614-382-5999.

Dynamic Microprocessor Associates, Inc. has added **PC Macterm** to its PCanywhere series of remote computing software.

PC Macterm works with PCanywhere III to allow any user to run a personal computer from an Apple Computer, Inc. Macintosh via a modem, a direct cable connection or an Appletalk network.

The software reportedly supports text modes on all PC video display adapters; support for the IBM Color Graphics Adapter will be available this year, according to the vendor.

PC Macterm costs $99.

Dynamic Microprocessor Associates, 60 E. 42nd St., New York, N.Y. 10165. 212-687-7115.

Software languages

A high-level programming language said to be compatible with GWbasic and Basica has been announced by **Metrabyte Corp.**

According to the vendor, **MBC-Basic** was specifically designed for developers of sophisticated custom software for industrial data-acquisition applications.

User-created procedures and functions may be stored as modules for use in future programs, and libraries may be created to store pretested error-free code for repeated use.

The package also allows the creation of up to five windows, and programmers have the ability to access the full 640K bytes of memory available to DOS.

MBC-Basic costs $195.

Metrabyte, 440 Miles Standish Blvd., Taunton, Mass. 02780. 617-880-3000.

Software utilities

A utility designed to provide increased flexibility for its Modelmate package and Autokey's Autocad users is now shipping from **Control Automation, Inc.**

Called **DXFconvert**, the product reportedly allows transfer of two- and three-dimensional information from Autocad into Modelmate. Information may also be transferred out of Modelmate by the user.

DXFconvert costs $149.

Control Automation, P.O. Box 160100, Altamonte Springs, Fla. 32716. 305-682-7077.

Printers/Plotters/Peripherals

Epson America, Inc. has added a pair of multipurpose 9-pin dot-matrix printers to its FX series products.

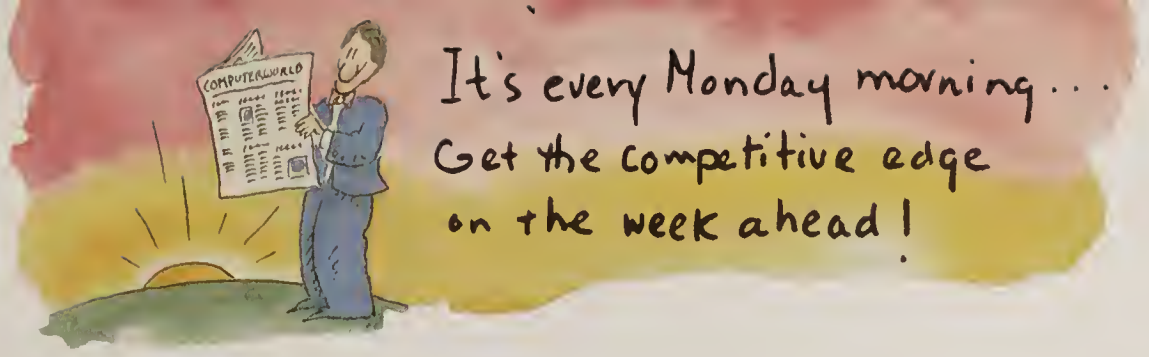
The two printers, the **FX-850** and the **FX-1050**, include a collection of paper-handling features that allow end users to easily switch between continuous-feed and single-sheet paper or envelopes without removing the continuous-feed paper.

The units support virtually all application software developed for the Microsoft Corp. MS-DOS environment, the vendor said.

Both models have reported print speeds of 264 char./sec. in elite draft mode and 54 char./sec. in elite near-letter-quality mode.

The 80-col. FX-850 will cost $549 and the 136-col. FX-1050 will cost $799.

Epson, 23530 Hawthorne Blvd., Torrance, Calif. 90505. 800-922-8911.



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   - 31. Dir , Mgr , Suprv , of Programming
   - 32. Programmer, Methods Analyst
   - 35. Dir Mgr , Suprv , OA/WP
   - 38. Data Comm Network/Systems Mgt.

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DATA STREAM

Marshall Rose

Managing TCP/IP nets

As networks grow larger and more complex, ad hoc methods for managing them become unworkable.

In the case of Transmission Control Protocol/Internet Protocol (TCP/IP), it initially was limited mostly to simple network topologies, which had little need for network management. However, the widespread success of this commercial standard, coupled with today's growth in network size, requires network management tools in order to maintain successful day-to-day operations.

What are these tools? Network management consists of two aspects: a monitoring component that gathers network statistics — such as the number of media errors, link failures, protocol errors and authentication failures — and a control component, which allows the network manager to modify network parameters.

These two aspects work hand in hand. Using monitoring, a network manager can determine which parts of the network are having problems; then, using control, the administrator can issue directives to the net-

Continued on page 31

Vendors swift to plug holes in AS/400 nets

BY ELISABETH HORWITT
CW STAFF

IBM's AS/400, formerly code-named Silverlake, was barely out of its box before third-party vendors began announcing products to fill the communications gaps left behind by IBM in such areas as support of multivendor networking protocols and links to IBM Personal Computer local-area networks.

AST Research, Inc. in Irvine, Calif., plans to fill in some of the "holes in what IBM has announced" in terms of micro-to-mainframe communications for the AS/400, according to AST product manager Javed Khan. For example, IBM does not offer 5250 terminal emulation for its OS/2 Extended Edition, Khan said.

And AST's soon-to-be-announced LAN-to-AS/400 gateway, which will be based on its IBM System/36 gateway, provides support of Netbios networks, which IBM has refused to provide for either of its mid-range systems, sources said.

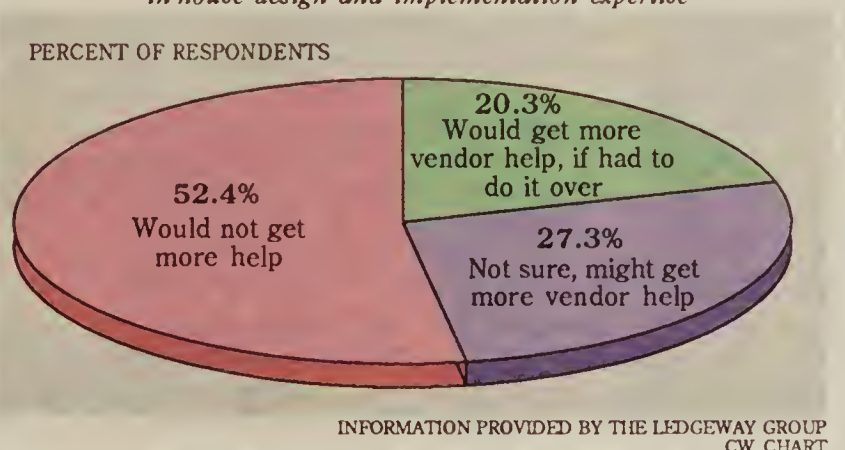
AST has been tweaking the software on its terminal-emulation boards so that they can interact with the AS/400's operating system, OS/400, Khan said. Such products include IBM 3270 and 5250 emulation boards and gateways designed to link IBM PCs and IBM Personal System/2s as well as PC LANs to System/36s and now to AS/400s. Scheduled availability of AS/400-compatible products should be announced in a week or two, Khan said.

Continued on page 30

Data View

Would do-it-yourselfers do it again?

Most of the 842 networking users surveyed prefer to rely on in-house design and implementation expertise



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Rolling with Novell

Applications support key to data base engine

Novell, Inc. beefed up its arsenal in the battle for control of the next generation of corporate departmental networks recently with the release of Netware SQL, which brings its Netware network operating system into the SQL data base market. The Provo, Utah-based vendor buttressed the announcement with a list of a half-dozen front-end developers who have promised immediate product support.

Computerworld staff writer James Daly recently spoke with Nancy Woodward, head of Novell's development products division, about the impact of the announcement. Woodward was formerly president of Novell's Softcraft division, which is providing the SQL capabilities.

Novell's Woodward

Why was the development of an SQL engine so essential to Novell?

Applications are increasingly being developed to send messages or requests to an SQL back-end [engine] or server, so we needed to provide that capability in the operating system.

How will your product differ from IBM's SQL data base manager?

The IBM product that has been announced for LANs is not a server engine. It connects to a mainframe host. Ours is an engine for a LAN. Netware SQL is also designed to support a wide variety of front ends. We're developing interfaces where necessary — such as to Lotus's Blueprint interface — to encourage a wide range of front-end applications that can all share a common data base.

What are the functional differences between the two approaches?

IBM's initial release is not intended for a LAN. It's a single-user, multitasking version that won't operate in a LAN environement, whereas Netware SQL will. In addition, IBM's only operates under OS/2, while Netware SQL can be called from either an OS/2 or DOS PC.

Netware SQL is an open-protocol product [with a flexible] interface for application developers. IBM's was written for DB2,

Continued on page 30

Inside

• Communications couple mulls start-up. Page 30.
• VM software simplifies Netview configuration. Page 31.

DEC announces support for ORACLE's multiprocessor architecture.

On April 19, 1988, Digital Equipment Corporation announced VMS V5.0 with Symetrical Multi-Processing Support (SMP). Oracle Corporation congratulates DEC for joining us in the transaction processing, data management marketplace. DEC's multiprocessor architecture now allows mission critical applications to take full advantage of the ORACLE® multiprocessor design.

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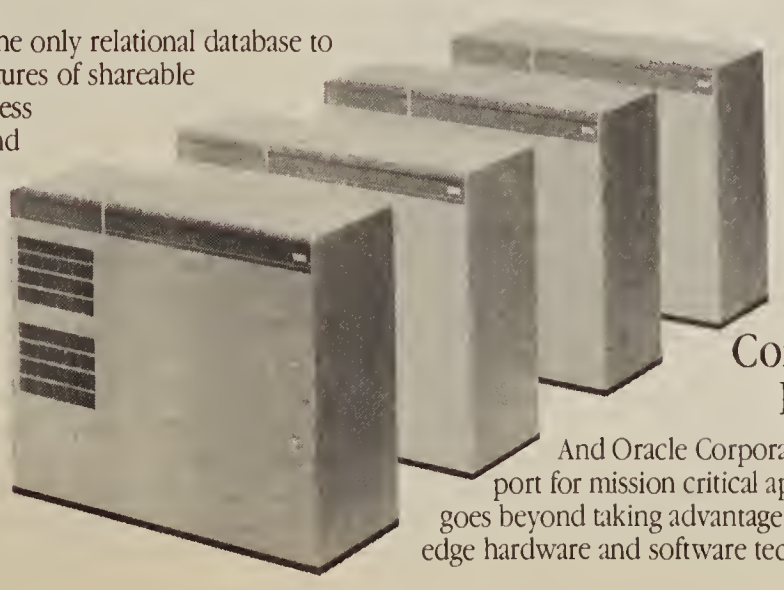

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BIT BLAST

Ex-Bridge execs look to the future

In a recent interview, former **3Com Corp.** President **Bill Carrico** and his wife, former **Bridge Communications, Inc.** division manager **Judith Estrin**, hinted at plans to launch a start-up that would focus on an emerging technology.

"Anything that Judy and I do in a new endeavor has to be in an area where the product is not in a maturity phase. We have not made any decisions other than we will target large end users," Carrico said.

Using Fiber Distributed Data Interface (FDDI) as an example, he noted that the fledgling standard is not fully complete but speculated that it will have a major impact by 1995.

"You could start a company today and become the Excelan of FDDI," he said. Estrin ticked off the following as other potential area of focus: Open Systems Interconnect, Integrated Services Digital Network and dedicated servers.

Torus Systems, Inc. in Redwood City, Calif., announced that it has begun shipping Tapestry II Version 1.0 three months early. Version 1.0 of the revamped network operating system supports Microsoft Corp. MS-DOS. The OS/2 version, which includes LAN Manager support, will be available, as planned, in September, Torus said.

Proteon, Inc. in Natick, Mass., recently signed a multimillion dollar, multiyear OEM agreement to supply token-ring products to Unisys Corp. The contract is expected to exceed $7.5 million over a three-year period. Proteon said its IEEE 802.5-based Pronet-4 token-ring products will be available as part of Unisys's desktop network offering.

The signing followed rumors denied by Proteon that it had rejected a buy-out offer by Unisys.

Telenet Communications Corp. has announced an X.400 Vendor Support Program for computer companies and software developers who want to provide X.400 links to Telenet's Telemail 400 global messaging service. The links will be made through Telenet Public Data Network, a packet-switching service.

Adaptive Computer Technologies, Inc. (ACT) in Santa Clara, Calif., said it is extending the licensing program for its Commpressor, a high-speed data compression algorithm, to include data communications software implementations. The ACT algorithm reportedly increases file transfer rates up to eight times, depending on the types of data and format. More than 40 companies are participating in ACT's licensing program for modems, which was announced in January, the vendor said.

Newsnet, a data base of specialized business newsletter information based in Bryn Mawr, Pa., said it has added "The Satellite Directory," "The Telephone Directory," "Open: OSI Product and Equipment News" and the "SNA Communications Report" to its collections of more than 100 telecommunications and computer industry information services.

A new release of **Kermit**, an error-correcting file transfer protocol available from the Columbia University Center for Computing Activities, is now available for IBM 370 mainframes. Portable Kermit-370 Version 4.0 reportedly runs on the entire IBM 370 series, supporting line-mode ASCII teletypewriter connections and full-screen IBM 3270-style connections.

Minitel USA, a subsidiary of France Telecom that is targeting the U.S. market, recently predicted there will be more than 12 million users of videotex services in the U.S. and Canada by 1999.

That figure is based on the present penetration of Minitel terminals in France, which amounts to 13% of the French residential market.

Telematics International, Inc. in Fort Lauderdale, Fla., said it will supply $50 million worth of CCITT X.25 products and services to the British Government Data Network under the initial three-year phase of a 10-year project.

Telematics is teamed on the project with **Racal Data Networks, Ltd.** and said the overall value of its decade-long contract to Racal is expected to hit $600 million.

The Port Authority of New York & New Jersey has selected Rockville, Md.-based **GE Information Services**' EDIstar Express to provide electronic data interchange capability for the Automated Cargo Expediting System, which enables data transmission in standardized formats for movement of freight within the port.

The system is expected to be operational and commercially available by the middle of this month.

GE also announced a deal with **Packet/PC, Inc.** in Farmington, Conn., that enables it to offer Packet/3270 Systems Network Architecture micro-to-mainframe links on its worldwide data and teleprocessing network.

Reston, Va.-based **Telenet** has signed an agreement with **Regie van Telegrafie Telephonie**, based in Belgium, to establish an X.400 interconnection between Telenet's Telemail 400 global messaging service and DCS.Mail, Belgium's public mail service.

Bell Atlantic Corp. said it has sold a multimillion dollar all-digital integrated voice and data communications system to **Drew University** in Madison, N.J. Linking 44 buildings, the system will be accessed by 2,000 students and school personnel. Bell Atlantic subsidiary New Jersey Bell will provide the local telephone and network services, while Bell Atlanticom will provide the communications equipment.

AS/400 nets

FROM PAGE 29

Another missing protocol in the AS/400's communications artillery, Transmission Control Protocol/Internet Protocol (TCP/IP), has been supplied by Mitek Systems Corp., which is part of IBM's Business Partner program. Mitek has announced an AS/400 version of its TCP/IP software, including File Transfer Protocol and Telnet applications. Release is planned for November, with prices starting at about $20,000, the Carrollton, Texas-based vendor said.

IBM also could have made it easier for users to port data from the System/36 and 38 to the AS/400, said Bernard David, president of General Information Services, Inc. Despite IBM's assurances that this operation would require only "minimal conversion," his firm has found that System/36 and 38 disk media are "incompatible at certain levels" with the AS/400, David said.

The Philadelphia company has announced data conversion services designed to facilitate the porting of data to the AS/400 from the System/36 and 38 as well as from a variety of other vendors' computers.

Converting a Mac?

Also in the works is a product that reportedly would convert an Apple Computer, Inc. Macintosh into a 5251 terminal that should communicate with either a System/36 or AS/400, David said.

Systems Strategies, Inc. said it is planning to come out with AS/400 versions of its Systems Network Architecture software, which enables corporate MIS managers and major computer vendors to implement the IBM networking protocols on non-IBM systems. In particular, the New York software company is interested in coming out with its own AS/400 version of IBM's Advanced Peer-to-Peer Networking (APPN), a peer-to-peer networking system originally designed for the System/36, said Edward Stevens, a Systems Strategies product support manager.

IBM's implementation of APPN on the AS/400 — "the second major SAA system to be announced" — is a good sign that the protocol is on the verge of Systems Application Architecture status, Stevens said. However, Systems Strategies still needs to "pore through IBM's literature" on the AS/400 version of APPN to see if it contains any new enhancements or changes before the vendor starts developing its own APPN product, Stevens said.

Systems Strategies also said it plans to come out with an AS/400 version of IBM's Distributed Data Management architecture.

Novell

FROM PAGE 29

their mainframe-embedded SQL data base. [IBM's SQL product] can be easily transported to [DB2], but it's more restrictive than the interface we offer. Netware SQL provides two levels of interface to the programmer.

How does Netware SQL compare to the Sybase, Inc. approach offered jointly by Microsoft Corp. and Ashton-Tate Corp.?

We don't have technical specs on Sybase, so that's hard to answer thoroughly. But I undertand that Sybase needs a 4M-byte server, and we can run on a 2M-byte server.

And their prices [$1,500] are supposed to be much higher than the $595-per-server price we're talking about. Netware SQL is geared toward a mass market of developers, and my impression is that Sybase is intended to be marketed more toward specific large vendors.

> "NETWARE SQL is geared toward a mass market of developers."
>
> NANCY WOODWARD
> NOVELL, INC.

What do these different approaches mean to the user?

By supporting a wider range of applications and making the interface easy and inexpensive to developers, we hope to allow a large set of applications to all share data. With Sybase, a lot of its intent is to support Dbase IV, whereas IBM is more interested in supporting the DB2 world. Theirs are more specific niche applications, wheras Netware SQL [will] provide support across a platform of micro applications.

Will the Novell SQL product beat Sybase and IBM out the door?

We'll be releasing it in the fourth quarter. [IBM's SQL-based OS/2 Extended Edition is slated for release next month, while Microsoft's SQL product also plans to ship in the fourth quarter.]

How did you go about rounding up developer support?

Those were the developers that we have been able to work with enough to come to an agreement. We selected vendors whose applications would bring a lot of value to the server. We have a large base of vertical market applications based on [Softcraft, Inc.'s Btrieve record manager], and that installed base can be accessed immediately by Netware SQL. Those vendors gain a lot of value by common interfaces, such as Lotus's 1-2-3 and Borland's Paradox, being able to access their data bases.

Will users of XQL, Softcraft's programmatic SQL interface for standard languages, be able to use Netware SQL without Netware?

No, Netware SQL will only run on a Netware file server. But a developer could write an application for XQL in a totally different environment — like Microsoft's LAN Manager or a stand-alone PC — and it would be able to run directly against Netware SQL in a Netware environment. But to execute Netware SQL, you have to have Netware.

What other product directions will Netware SQL lead into?

Our initial release of Netware SQL is for DOS and OS/2, but we'll continue to expand access to other Netware environments, such as the Macintosh.

In addition, we intend to add to the power of the server and [ease] data base complexity. Referential integrity will be more fully implemented in future releases.

When will Novell provide SQL support for Digital Equipment Corp.'s VMS, the Mac and Unix environments?

We're not announcing any dates on those just now.

VM targets Netview

BY KATHY CHIN LEONG
CW STAFF

RESTON, Va. — VM Software, Inc. last week announced what it called a precursor to IBM's Netview — a line of network management software said to simplify network configuration.

"We are not competing head-on with IBM," said VM Vice-President of Product Marketing Mark Weitner. Instead, VM is targeting easier network control, he said.

The product family, which includes Netstar Edit, Netstar Monitor and Netstar Control, runs on both an IBM Systems Network Architecture (SNA) host and an IBM Personal Computer AT and uses a graphics interface based on pull-down menus and icons.

Instead of writing code to add a terminal on a network, for example, a Netstar Edit user would use a mouse to point to a terminal on the screen. The software reportedly would automatically upload the change into a VTAM host format. Also featured is a data base said to store device network inventory information, node location and other data needed for network management.

The pictorial mapping of the network lets users view the entire network down to the device icon, according to the vendor.

Netstar Monitor captures network statistics, alarms and errors, sending them up to the host. Users can examine which ports are in use.

Netstar Control features artificial intelligence capabilities that automate operations — for instance, increasing buffer size on the network when traffic becomes too heavy. Weitner said this set of tools does not replace Netview because it does not address the issue of embracing non-SNA devices.

The products are undergoing beta testing at a financial and industrial institution. Although they have not been priced, Netstar Edit will be available in the third quarter, Netstar Monitor will bow in the fourth quarter and Netstar Control will come out in the third quarter of 1989, the vendor said.

Rose

CONTINUED FROM PAGE 29

works to effect repairs.

For example, if a leased line is suffering a high error rate, resulting in increased retransmission and more congestion in the network, a network manager might opt to mark the line as "down" so that the network always chooses an alternate path. Monitoring can also aid in planning for expansion. By gathering load and throughput statistics, a network manager can generate quantitative justifications for network upgrades, such as additional or faster lines, and determine the optimal location at which to deploy the new resources.

A two-phased approach

The TCP/IP community has adopted a two-phased approach to network management.

In the short term, the Simple Network Management Protocol (SNMP), an application developed for TCP/IP, is being used. The SNMP framework is based on the notion that the bulk of the processing should be done by a human operator and that only minimal management functionality should be built into the network elements that are managed — for example, routers, hosts and the like. This approach is particularly attractive since it minimizes the implementational impact on the network components while still allowing flexibility in choosing management capabilities.

In the long term, the TCP/IP community will migrate from SNMP to the Open Systems Interconnect (OSI) network management protocol — but only after the embryonic OSI protocols are fully functional, which could be as much as five years down the road.

Meanwhile, SNMP is here now. In the development stages, it got some powerful backing from the U.S. Department of Defense, which wanted a way to manage its own TCP/IP-based Arpanet. While OSI developers are trying for the final word in network management standards, SNMP is based on simpler protocols that were developed to do the job adequately, period.

A surprisingly large number of complex management functions can be built into TCP/IP internets, using very simple management operations. Network operations centers are concerned with monitoring and repairing network communications. An effective network management tool is one that asks a router about the status of each of its attached links — for example, load utilization and errors. An overall picture of network traffic patterns is also possible, in order to identify overburdened routers and links.

All of these capabilities allow a network manager to answer the question asked most often on network operation center hot lines: "Why can't my host X communicate with host Y?" With network management, the path between hosts X and Y can be traced, asking each router in turn where it will next forward the information.

A second class of applications takes corrective action when devices report an unusual number of problems or other unexpected events, called "traps." Further, trap reports can be analyzed to determine common trends.

Independent of the class of applications is the user interface available to the network manager. Network management tools exist today on both PCs and larger workstations, often with ease-of-use features such as graphics and windowing. Also, an operating center for a large network might reside on a more powerful computer with enough secondary storage to capture all the statistics being gathered and processed.

Thus far, the management tools developed have been concerned with connectivity and other lower level issues. In the future, network management will expand its focus to include user applications, such as monitoring file transfer performance and managing shared network resources.

Rose is a principal software engineer at the Wollongong Group and has co-authored two documents that specify the network management framework for TCP/IP internetworks.

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NEW AT PC EXPO

Connectivity was king at the recent PC Expo, as communications products flooded the aisles of the annual trade show, held in New York two weeks ago [CW, June 27].

Digital Communications Associates, Inc. unveiled two software packages: **3270 APA** graphics software, which is said to allow personal computers to access graphics applications stored on a mainframe computer; and **Irmax DFT**, which uses Distributed Function Terminal technology to boost the communications processing power of PCs linked to mainframes.

Set to be available in the fall, the graphics package will cost $495. Irmax DFT is slated to ship this summer at an introductory price of $295 for the software only or $995 for a turnkey system until Jan. 31.

Applied Creative Technology, Inc. introduced **Systemizer Plus**, a modem-size desktop device designed to form a distributed peripheral-sharing network. Up to 31 Systemizer Plus-equipped users can share access to up to 31 printers, plotters and modems and can also exchange electronic mail and data files, the firm said. Systemizer Plus is priced at $399; the company currently charges $249 per 256K bits of memory, but that price is subject to change given current industry conditions.

Action Technologies, Inc. announced **Version II** of **Coordinator**, "groupware" software said to allow managers to collaborate over IBM Personal Computers or compatibles.

The firm said the enhanced version improves on the previous version by providing a message handling service and improved menus. The stand-alone version is priced at $495, while file server configurations range in price from $995 for a 10-user version to $4,995 for a 100-user version.

Fischer International Systems Corp. announced four **EMC2** PC workstation products said to provide access to the company's EMC2 global E-mail system, which runs on IBM mainframes. The four products include **Advanced 3270**, which provides terminal emulation; **PC Link**, which is a file transfer management program; the **Advanced Asynchronous Communications** package, which is also a file transfer program; and **Personal EMC2**, which lets users read and create mail while disconnected from the host.

Conetic Systems, Inc. announced a gateway between its Higgins E-mail products and Novell, Inc.'s store-and-forward Message Handling Service (MHS) for its Netware network operating system. MHS facilitates program-to-program transfer of data.

Called **Higgins To:MHS**, the product reportedly lets users of any E-mail system that links to MHS communicate with Higgins users. It provides an interface, or delivery agent, said to make MHS responsible for transfering mail between Higgins systems on two or more local-area networks. Communications support is concentrated at the network operating system level. The product is priced at $495, with September delivery scheduled.

Standard Microsystems Corp.'s Systems Products Division announced an **OS/2 LAN Manager driver** for its Arcnet networks. The driver reportedly provides higher throughput by addressing the session-level protected-mode Netbios protocol rather than the media access control layer.

Protected-mode Netbios is at Level 5 of the seven-layer Open Systems Interconnect (OSI) model; it interfaces at the top with Microsoft Corp.'s LAN Manager and at the bottom with Arcnet hardware, the vendor said.

Higher throughput speed is achieved by using a memory manager said to permit message passing between OSI layers via data pointers, as opposed to copying the data into each layer's buffer. The driver uses up to 85% of the theoretically available capacity of Standard Microsystems 2.5-MHz Arcnet speed, the vendor claimed.

The company also introduced a pair of 16-bit Arcnet network controller boards: the **PC500FS**, for file servers, and the **PC500WS**, designed for workstations.

The vendor claimed the boards will load the data packet buffer at better than twice the data rate of the standard Arcnet board with 8-bit-wide data bus.

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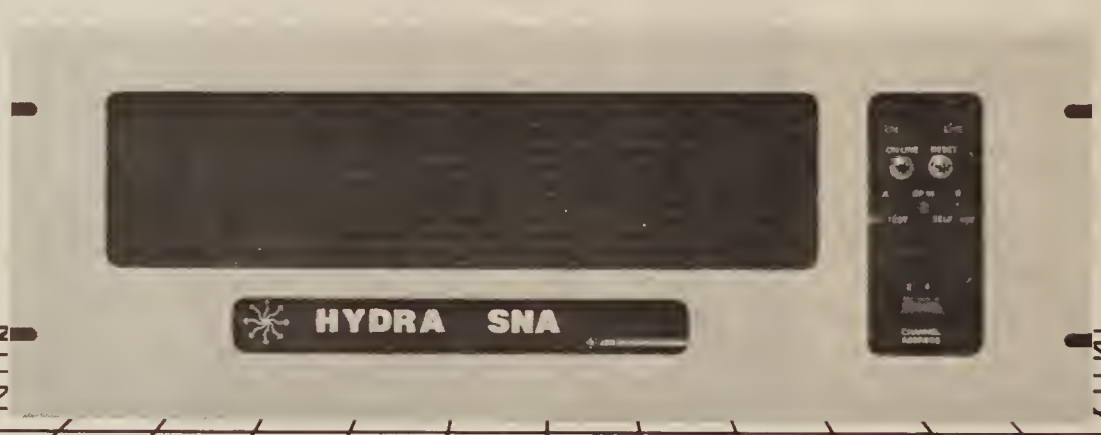

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HYDRA SNA provides 3270-type emulation for ASCII terminals and PCs, supports many popular ASCII terminals, and offers key mapping facilities allowing additional terminals to be supported. HYDRA SNA supports local and remote applications and provides password, call-back, and positive logoff security.

HYDRA SNA features quality design that provides outstanding performance for connecting devices and offers flexibility that incorporates quick set up for normal operations and an easy to use configuration facility.

HYDRA SNA is available in 8-port increments from 16 to 64-ports. The design features easy expansion enabling models to be upgraded up to a total of 64-ports. HYDRA SNA attaches to IBM and compatible 360/370/30XX/4300 mainframes.

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NEW PRODUCTS

Local-area network hardware

Synoptics Communications, Inc. has announced the availability of a Tempest version of its fiber-optic Lattisnet products, designed to comply with the national Tempest, Inc. specification.

Tempest Enclosure reportedly allows concentrators and transceivers to be field-upgraded to Tempest specifications or enclosed prior to shipment. Concentrators fit into the 19- by 19-in. Tempest enclosures.

The Model 8100 Tempest Concentrator Enclosure costs $2,000. The Model 8104 Tempest Transceiver Enclosure costs $150.

Synoptics, 329 N. Bernardo Ave., Mountain View, Calif. 94043. 415-960-1100.

HARD TALK

Stanley Gibson

Reflections on Silverlake

The AS/400, formerly known as Silverlake, was probably ready and waiting for months. It must have been the rollout that took so long to perfect.

Professional actors had to be hired and had to learn their lines. IBM Vice-President Larry Ford had to learn a number of lines himself and make sure he was in the right place at the right time. (He did.) Multiple IBM executives had to polish their speeches. And the hookup to Rochester, Minn. — not to mention the worldwide satellite video broadcast — had to work flawlessly.

Above all, the AS/400 computers had to rise on elevators from the stage at the words, "And here they are!"

Palatable corn

There was a lot of corn, but for the 1,700 customers, dealers, analysts and members of the press at the Sheraton Centre ballroom in New York late last month, it all went down well.

Whether or not the AS/400 means a lot to the user community, only time will tell. But right now, there is no question the

Continued on page 36

Justice DP granted new venue

BY MITCH BETTS
CW STAFF

WASHINGTON, D.C. — After a while, you just get tired of baby-sitting the air conditioner on wintry nights.

That is one of the reasons the U.S. Department of Justice plans to move its main data center this fall from the Chester A. Arthur Office Building in Washington, D.C., to a modern computer center in nearby Rockville, Md. In May, the Justice Department moved its other data center, located in Dallas, to new digs.

"We're tired of trying to run data centers in office buildings," which lack security, high ceilings and proper air-conditioning systems, said Stephen R. Colgate, deputy attorney general for information and administrative services.

The air-conditioning system at the current Washington, D.C., site was designed only for summertime use by office workers, not the year-round demands of a computer center, said Frank A. Guglielmo, director of the computer technology and telecommunications staff.

The baby-sitter's here

"There were times — like in January when the temperature is going to get below zero — when we actually had to have the air-conditioning contractor come in at midnight and baby-sit with the unit. He had heat tape wrapped around the pipes to keep the

Continued on page 36

Justice department boosts information technology funding

Increased expenditures reflect the agency's efforts on two fronts: illegal immigration and drug trafficking

INFORMATION PROVIDED BY THE U.S. DEPARTMENT OF JUSTICE
CW CHART

Amdahl proposes CPU swap

BY J. A. SAVAGE
CW STAFF

SUNNYVALE, Calif. — Amdahl Corp. would rather its customers switch — to a higher powered Amdahl CPU.

The IBM plug-compatible mainframe maker recently said it will require swaps of its 5990 mainframes for older multiprocessor 5890 CPUs rather than perform complicated and time-consuming field upgrades.

Customers must allow the company to simply unplug a 5890 and plug in a new 5990 over the weekend, avoiding on-site work by engineers and the attendant wiring, parts and tools taking up space in the computer room.

Swapping machines takes less time than a field upgrade because the CPUs have already undergone testing and are supposed to work, according to David Anderson, vice-president

Continued on page 36

Altos 386 looks for work in Fortune 1,000

BY J. A. SAVAGE
CW STAFF

SAN JOSE, Calif. — Altos Computer Systems, Inc. announced a 20-MHz version of its Intel Corp. 80386-based multiuser computer last month, spearheading that firm's attempt to sell to large corporate departments. Prior to announcing the Model 20 of the Altos Series 2000 family, Altos had shipped 270 systems, the company said.

A benefit that the system, in its high-end configurations, brings to Fortune 1,000 companies is its enhanced networking abilities with personal computers running Microsoft Corp.'s MS-DOS, said Richard Tung, director of system marketing at Altos. He said that this feature would play an important role in bringing Altos systems to Fortune 1,000-type firms: "In the past, we've always been positioned in small business."

Altos said the new CPU runs 25% faster than its previous Series 2000 processors. Prior models offered a 16-MHz clock speed.

The seven versions of the Model 20 offer an option to fully

Continued on page 36

Inside

• HP designs boards intended for integration into VME-bus-compatible systems. Page 37.
• Du Pont division announces digital proofing system based on thermal sublimation technology. Page 38.

► IBM 3270 and System/3X Users:

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7224

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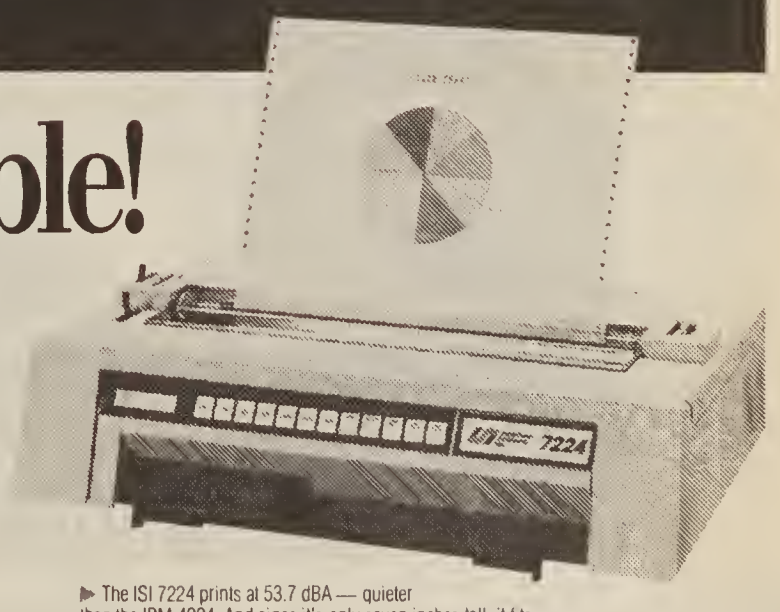

► The ISI 7224 prints at 53.7 dBA — quieter than the IBM 4224. And since it's only seven inches tall, it fits tighter spaces.

The best way to leap through next Monday

IBM OS/2 will bring superb graphic and multitasking capabilities to the PS/2 as shown here.†

years ahead and get at the same time.

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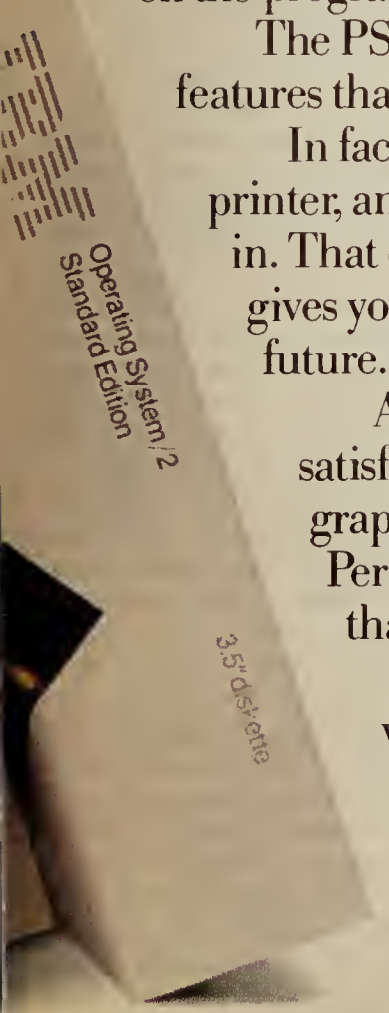
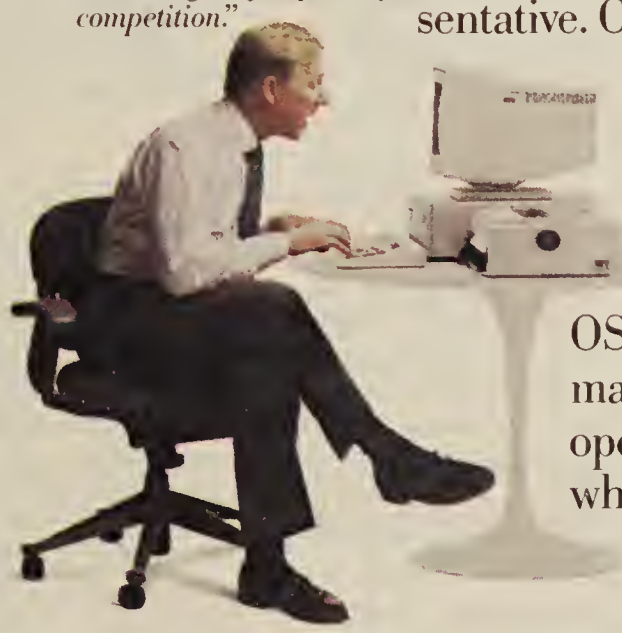


"Now I've got a jump on my competition."



IBM The Bigger Picture

*Based on performance test results published in the April, 1987 and January, 1988 issues of *PC Digest*, comparing the PS/2 Models 30, 50, 60 and 80 to the IBM PC XT-089, running Lotus 1-2-3 and DisplayWrite 4. Actual results may vary. †This simulated screen shown was developed using the IBM Storyboard Plus program. IBM, Personal System/2 and PS/2 are registered trademarks; PC XT, Operating System/2, OS/2, Micro Channel and DisplayWrite are trademarks of IBM Corporation. Lotus and 1-2-3 are registered trademarks of Lotus Development Corporation. © IBM 1988.

Gibson

FROM PAGE 33

AS/400 means a lot to IBM. Everything about the rollout proclaimed IBM's fervent wish that the AS/400 becomes a success.

Conspicuous by its absence at the rollout was the IBM 9370. Ford mentioned the lackluster processor in order to redefine its markets: distributed IBM 370 environments, numerical processing, computer-aided design and manufacturing and Unix.

IBM may want to complain that analysts and the press have unfairly tagged the 9370 as a failure. But at the rollout, you got the feeling that IBMers themselves have come to look on it that way. Especially the people involved in AS/400 development.

At a technical briefing after last month's rollout, John Sears, IBM's consulting market support representative from Rochester, claimed the AS/400 offers power and pricing similar to other processors but has a better engineered architecture. "Superior to what architecture?" this reporter asked.

"The 370, for example?" chimed in another.

"For example," Sears responded, to the amusement of the press and consternation of other IBMers present.

Indeed, there seemed to be a glow of triumph surrounding the Rochester IBMers. The rollout could have aptly been called "Rochester's revenge," keeping in mind that Rochester had been the scene of a personnel "redeployment" a couple of years ago.

Rochester IBMers are like the forgotten slugger Roy Hobbs in *The Natural,* against whom the fates have conspired to keep out of baseball for years. Then he surprises everyone by coming out of retirement and blasting the ball out of the park.

"Welcome to IBM's secret announcement, joked an IBM spokesman prior to the AS/400 press briefing. The fact is, more was probably known about the AS/400 and its capabilities before its announcement than was known about the 9370 one year after its announcement.

For several months after the 9370 rollout, the journalists' holy grail was to find a real 9370 at a site performing real work and get a picture of it. In the basement of the Sheraton at the rollout, IBM had about 20 different AS/400 models on display with different applications and third-party vendors.

In the excitement of the AS/400's introduction and having demonstrated his stage presence with professional actors, perhaps Ford could be excused if he forgot that IBM changed some prices on the System/38 line. In answer to my question about price changes on System/36 and 38s, he replied that there was no pricing action.

Surprise! A few days later, *Computerworld* discovered that there were indeed price cuts on System/38 upgrades and on the System/38 Model 700. There was also a price increase on one upgrade.

But maybe Ford did not forget — maybe he did not know anything about the cuts to begin with.

There was no mention of any of the price changes in the customer letters we and many others received. However, some say they did receive news of the pricing action. Very mysterious.

Was news of Silverlake intentionally leaked by IBM in the months preceding its introduction? Yes, says one key recipient of those leaks.

Natalie Steele, president of Mid-Range Products, Inc. in Deerfield Beach, Fla., says IBM intentionally fed her information knowing she would soon make it public through her newsletter, "Hot Sheet," and through her press contacts.

"IBM could not have paid for the publicity they got for free," Steele says.

David Andrews, perhaps the original Silverlake guru, said IBM did not plan the leaks — at first. "This was not a contrived plot. But in the end, they [IBM] enjoyed it."

Gibson is *Computerworld's* senior editor, systems & peripherals.

Amdahl

FROM PAGE 33

of processor product management.

Installation/deinstallation will become standard at the industry's high end, Anderson predicted.

He said he expects IBM's high-end follow-on, usually referred to as the "F" series of its 3090 mainframe line, to offer this mode of upgrade when it is released toward the end of this year.

Wave of the future?

"I don't want to predict the future," he said. "But if you look at how many customers this [upgrade] is available to, it should catch on." Anderson said he expects this may become common in the industry for a product's "mid-life kicker."

The swap is for users with either a dual- or quad-processor system. Users with uniprocessor systems would not benefit from a CPU swap for an upgrade, as a field upgrade for a uniprocessor is "relatively straightforward," Anderson said.

The company has been changing the way its mainframes are designed to facilitate deinstallation and reinstallation, according to Anderson. With the 5890 and 5990, Amdahl has repackaged the computers to allow for more modularity and less site permanency.

National Advanced Systems, one of Amdahl's major competitors, still plans on doing field upgrades, according to Carl Claunch, director of market planning. Claunch said he did not see swapping as the wave of the future for his company.

No price has been set for this kind of upgrade, but Anderson said it would be a slight premium in the difference of list prices between the new and old CPUs, between $50,000 and $150,000. The 5990-700 is currently priced at $7 million and the 5990-1400 is $13 million.

Although a number of customers have said they plan to use this form of upgrade, Anderson said that none have yet been done.

Amdahl began shipping its first 5990 models late last month.

Altos

FROM PAGE 33

restore memory in case of power failure.

A small battery supplies backup power to save the state of the system's memory, down to the position of the cursor at the time of the power interrupt. The power supply subsystem is available for less than $3,000, according to the company.

Earlier Altos systems ran the Xenix operating system. The Model 20, which supports up to 64 users, runs both Xenix and Unix System V, Release 3.1.

The Model 20 offers either a 125M- or 150M-byte cartridge tape drive, either of which more than doubles the capacity of the earlier model. An upgrade kit is available for replacing the 60M-byte drive on previous models for about $2,500.

Optional for the new system is a 380M-byte hard disk. The Model 20 can accommodate three such internal disk drives, which cost about $7,800 each.

The seven configurations start at $20,000 for an Intel 80387-based 20-MHz floating-point coprocessor, 32K bytes of memory cache, 4M bytes of main memory, a 1.2M-byte floppy drive, a tape cartridge drive, an enhanced small-device interface disk and a terminal.

At the high end, the system costs $32,000, increases to 8M bytes of main memory and adds a multidrop interface controller and a 380M-byte hard disk.

Justice

FROM PAGE 33

thing warm enough so it wouldn't freeze up on us," Guglielmo said.

Another problem with office buildings is that they lack the high ceilings needed to provide ample space once high computer room floors are put in.

"The 10-foot ceilings here are just not enough for air circulation," Guglielmo said. "You need between 17 and 19 feet, because under the floor you want between 30 and 40 inches for cabling and water . . . and then you want high enough ceilings so that the heat will dissipate up at the top."

The Rockville facility will have 30 inches under the floor, and the new data center in Dallas has 36 inches under the floor, Guglielmo reported.

The Justice Department moved its Dallas-based computers in mid-May from a leased building to a renovated U.S. Postal Service building owned by the government.

The U.S. General Services Administration spent $12 million during three years to convert the Dallas building into a model high-technology facility, officials said. The Dallas center also features uninterruptible power supplies, including 18 minutes of battery backup and diesel generators with a 12 day-supply of fuel on-site.

"We've already run off the diesel engines for a week . . . when we were going through the first operational tests. We switched over to the uninterruptible power supplies and ran off of those for a week just to test everything, and it ran beautifully," Guglielmo said.

Room to grow

One major reason for relocating the two data centers was the need for expansion room to meet the processing needs of the fast-growing department, officials said. Between its two data centers, the Justice Department now has eight Amdahl Corp. 5870 mainframes that are close to capacity, and the department is preparing to grow from 178 million instructions per second (MIPS) to 500 MIPS of capacity in the next five years.

"Justice is probably the largest growing civil agency in the government," Guglielmo explained. "We've grown astronomically in terms of the number of people and mission."

In fact, the projection of 500 MIPS in five years is conservative. Guglielmo said he would not be surprised to see the number reach 1,500 MIPS in five years.

To meet the growing requirements, the agency plans to add processors in the IBM 3090 class through competitive bidding. The most likely scenario is to buy two 3090-class units in the next 12 to 18 months as an interim solution and then start a major procurement to obtain more processors in about two years, Guglielmo said.

The likely bidders are IBM, Amdahl and Vion Corp., a reseller of IBM-compatible mainframes.

Guglielmo said he likes to estimate the future growth rate and then "build contracts with a lot of capacity. You don't have to buy it all, but if you don't have it, you're up the creek without a paddle." Mostly, he said he wants to be in the position in which "you can just roll in machines as you need to roll them in" to meet user requirements.

> "WE THINK OF OURSELVES as being a big utility or time-sharing company . . . and that makes us very conscious of price/performance [ratios]."
>
> STEPHEN R. COLGATE
> U.S. DEPARTMENT OF JUSTICE

That goal reflects the data center's function as an in-house vendor of computer services. Unlike most federal offices, the Justice Department's Information and Administrative Services office does not have its own budget or congressional appropriations because its services are provided to users on a full cost-recovery basis, officials said.

Consequently, as long as the users' missions are growing and they are getting appropriations, the growth in information technology spending will continue, Guglielmo said.

However, the data center is under continuous pressure to be a low-cost provider, since units of the Justice Department could go outside the agency for data processing services. "We have to constantly show users where they're going to get more for their dollar next year than they got last year," Guglielmo said.

"We think of ourselves as being a big utility or time-sharing company . . . and that makes us very conscious of price/performance [ratios]," Colgate said.

NEW PRODUCTS

Processors

Burr-Brown Corp. is offering a motherboard and associated I/O daughterboards specifically designed for integration into any Motorola, Inc. VMEbus-compatible host system or workstation.

The **MVP121** will add fast analog I/O to systems currently using Burr-Brown's SPV120 general-purpose VMEbus board, the vendor said. The SPV120 incorporates Texas Instruments, Inc.'s TMS32020 processor and supports data transfer rates of up to 4M bytes. Optional plug-in memory expansion modules are available. The MVP121 carrier board interfaces directly with the SPV120 auxiliary I/O ports to relieve VMEbus traffic and increase overall system performance.

The MPV121 with analog I/O costs $2,985. The MPV121 and SPV120 combination subsystem with analog I/O costs $5,680.

Burr-Brown, P.O. Box 11400, Tucson, Ariz. 85734. 602-746-1111.

Hewlett-Packard Co. has reportedly combined its **HP 64700** emulation technology with its logic analyzer on a chip to create microcomputer development tools for Texas Instruments, Inc.'s TMS32020 and TMS320C25 signal processors.

The development tools consist of stand-alone in-circuit emulators and emulation bus analyzers for the TI products. The tools are host-independent, and special interfaces are available for IBM Personal Computers and compatibles.

The products are members of the HP 64700 series of emulators and analyzers for the entry-level market.

Features include real-time, zero-wait state execution of up to 20 MHz for the TMS32020 and up to 32 MHz for the TMS320C25.

The products reportedly can also provide synchronized multiprocessor emulation.

Prices range from $13,300 to $16,500, depending on configuration.

HP, 3000 Hanover St., Palo Alto, Calif. 94304. 415-857-1501.

CAD/CAM/CAE

Sony Microsystems Co., a division of Sony Corporation of America, and **Motorola, Inc.** have announced a high-end workstation based on dual Motorola 68030 microprocessors.

The dual-68030 architecture will be incorporated into high-end models of Sony's News Unix technical workstation family and will support the X-11 Window System standard from MIT, the vendor said. Dubbed the **News 1800 series**, the 32-bit workstations will reportedly provide high-performance graphics and software compatibility with existing Unix applications and will run at 25 MHz.

The News 1800 series will cost from $35,000 to $45,000 per workstation.

Sony, 1049 Elwell Court, Palo Alto, Calif. 94303. 415-965-4492.

Data storage

A removable drive system designed for Q-bus and Digital Equipment Corp. Unibus systems has been announced by **American Digital Systems, Inc.**

Called **Masterdisk Removable**, the system reportedly will protect data as it is being written to the disk. In addition to the standard level of shock mounting, which protects the disk drive from minor low-frequency vibrations, the system also incorporates a steel alloy shell. Single-system drives are available in 152M- and 369M- byte formats, and up to four drives can be mounted in one 10½-in.-high rack space. Up to two drives can be mounted in a 5½-in. area.

Masterdisk Removable is priced from $8,650.

American Digital Systems, 75 Union Ave., Sudbury, Mass. 01776. 617-443-7711.

A mass-storage subsystem said to be compatible with Q-bus, Digital Equipment Corp. Unibus, Motorola, Inc. VMEbus and Intel Corp. Multibus architectures is available from **Summus Computer Systems.**

Called **Gigatape JBL 125**, the system can be configured in several capacities, ranging from 125G bytes to multiple terabytes. The 125G-byte configuration occupies a 7-in. front panel in a 19-in. rack mount and includes an autolibrary system.

The Gigatape JBL 125, including the Gigatape Librarian, carries a price of $38,000.

Summus Computer Systems, P.O. Box 82059, Houston, Texas 77282. 800-255-9638.

Terminals

A series of compact, multifunction microterminals for data entry and display applications has been introduced by **Burr-Brown Corp.**

The **TM8500** and **TM8550** terminal products accept data input both manually and through automatic identification interfaces, the vendor said. The base unit, which contains a display and keyboard, features a backlit 80-char. LCD and an elastomeric keyboard.

The TM8500 provides a standard 51-key alphanumeric arrangement; the TM8550 has a 23-key numeric arrangement that includes function label areas.

Continued on following page

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Continued from preceding page

The TM8500 and TM8550 series cost from $1,095.

Burr-Brown, P.O. Box 11400, Tucson, Ariz. 85734. 602-746-1111.

Printers/Plotters

Du Pont Co.'s Imaging Systems Division has introduced the **4Cast Digital Color Imager**, a digital proofing system that employs dye-thermal sublimation transfer technology.

Unlike binary thermal transfer systems, which rely on "dithering" to show the effects of gradation, thermal sublimation technology achieves 256 gray levels of color at each pixel location to maintain high-resolution output.

The 4Cast Digital Color Imager reportedly produces a nonhalftone proof that is comparable in quality to continuous-tone hard copy. The standard system configuration incorporates a personal computer-type interface system, a thermal sublimation printer and all required software into one cabinet.

The company also announced **Print Expert**, an advanced color analysis and quality-control system designed to aid printers and trade shops in producing better quality color printing through accurate measuring of color placed on a hexagon.

The system allows the printer to determine the precise direction and amount of color shift by reading a mid-tone gray balance patch in the color bar. The standalone system incorporates a Hewlett-Packard Co. computer, a color monitor, a dot matrix ink-jet printer and proprietary software. A reflection densitometer is also provided that can reportedly measure density values to the third decimal place.

Prices will be announced upon availability.

Du Pont, Imaging Systems Division, Wilmington, Del. 19898. 302-733-9107.

A film said to allow any laser printer to produce overhead transparencies is now available from **Arkwright, Inc.**

The **Data/View Laser** transparency film is optically clear and may be ordered in 4- or 5-mil weights. The film reportedly provides unlimited shelf life. There is paper backing on each sheet to allow for multifeed capabilities. The transparency film comes in clear for black-on-white images and in blue and yellow tints for black images on tinted backgrounds.

The Data/View Laser transparency film costs from $41.25 to $52.50.

Arkwright, Dept. P, Main St., Fiskeville, R.I. 02832. 800-942-5900.

Auxiliary equipment

Hewlett-Packard Co. has announced a four-channel digitizing oscilloscope called the **HP 54501A.**

The product reportedly features a 100-MHz bandwidth and 16 automatic pulse-parameter measurements. In addition, it offers a simplified user interface, front-panel operations, automatic calculation of statistics and dual-time-base windowing.

Several accessories are available, including modular probes and integrated-circuit test chips.

The HP 54501A carries a price of $3,465.

HP, 19310 Pruneridge Ave., Cupertino, Calif. 95014.

A video isolation transformer intended to eliminate the hum in television and data systems is available from **North Hills Electronics, Inc.**

The **NH-12847** provides 110-db ground isolation at power-line frequencies and 500-Vrms isolation between I/O and ground, according to the vendor.

Reported bandwidth is 10 Hz to 5 MHz. Applications include broadcast-quality television equipment, process control and medical imaging systems, the vendor said.

The NH-12847 costs $104 in small quantities.

North Hills Electronics, 1 Alexander Place, Glen Cove, N.Y. 11542. 516-671-5700.

Maintenance equipment

Enhanced small device interfaces (ESDI) and other 760M-byte Winchester disk drives operating at 15M bit/sec. data transfer rates can now be tested with an analyzer offered by **Wilson Laboratories, Inc.**

The **MWX-1000E Winchester Drive Analyzer** reportedly accommodates all types of ESDI drives, including 5- and 10-MHz models. Digital testing includes write, read and seek.

The MWX-1000E costs $9,983.

Wilson Laboratories, 2237 Batavia St., Orange, Calif. 92665. 714-998-1980.

Prime Computer, Inc. has announced the **Priority Replacement Service** that will reportedly provide hardware and software replacement within 48 hours of a loss.

The service will allow Prime users whose systems have been damaged or destroyed by unforeseen circumstances to purchase an equivalent Prime system and software license within 48 hours of proper notification to Prime. The vendor will provide free installation unless the system is customer-installable. The service program is available immediately in the U.S.

The Priority Replacement Service costs $200 per system, per month.

Prime Computer, Prime Park, Natick, Mass. 01760. 617-655-8000.

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MainLink II's half-card size means you can install it in any laptop PC—such as the Datavue® SNAP™—that accepts add-on boards. You can turn that PC into a truly portable terminal. The half card also saves precious space inside the case of desktop and "luggable" PCs.

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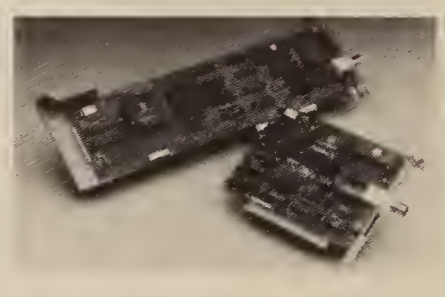
IBM Compatible	●		●
Soft Loaded Microcode	●	●	
Power on Self Test	●		
PC/XT/AT/PS2 Compatible	●	●	●
3174, 3274 Supported	●	●	●
Emulation and IBM IND$ File Transfer	●	●	●
Microchannel Available	●	●	●
Price	*$545	#$1,294	+$1,020

* - MLII-E $545.00. MLII-EM Micro Channel Version $645.00 MLII $395.00 - No Software. MLII-M $495.00 - No Software

\# - IRMA2 $1294.00 + $99.00 for IND$ File Transfer Support

\+ - IBM Board is $595.00 and Version 2.0/3.0 Software is $425.00



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Does your software thwart end users?

How to identify and correct productivity snafus

BY KATHLEEN POTOSNAK

Providing useless functions, or ones that end users find difficult, can penalize system resources as well as productivity.

Take, for example, the on-line inquiry system at a British bank. It provides 36 ways to extract information about customer accounts. The log of all the commands used by the banking staff shows that only four commands accounted for 75% of system use. A survey revealed that end users, on the average, could remember only 11 of the 36 functions of the system.

Further analysis showed that end users could correctly identify the right command for only 53% of a representative range of tasks. For 26% of the tasks, they identified a command that would give them the correct information, but there were other commands that would have provided the information more directly.

People were avoiding the other functions of the system because too much effort was required to learn them. End users took the route of least effort by sticking with the functions they knew well and misapplying them to other tasks. End users reported they would search for a correct command only about 3% of the time. Rather than searching through the other functions available for a more appropriate command, they made do with what they already knew.

The key to increasing end-user productivity is twofold: provide the functions users really need and make those functions easy to use. A system can provide numerous functions, but if they aren't useful and usable, the software won't do much to increase user productivity.

Creating useful and usable software requires first-hand knowledge of how end users work and an understanding of their mental models of the tasks involved. Classic system analysis techniques do not achieve this knowledge, because the end user relies mainly on the interview process.

A better technique is task analysis. This method involves controlled observations of potential system users performing their regular work. The observer systematically records users' activities at timed intervals of a few seconds or more. Data is collected over a period of days or weeks.

WARREN GEBERT

Results of task analysis can turn up the typical order in which subtasks are performed, the activities that normally occur together, how often tasks are performed and other useful information. When MIS applies the results to system design, the data is useful for creating task procedures that match a user's normal way of doing things.

In the on-line banking case study, a task analysis would have allowed the designers to organize the list of commands according to the task groups performed by users. (The current system lists the commands in the order of their numeric codes.) This arrangement would have encouraged users to explore new functions, because they would have had more confidence that the function they chose would be appropriate for the task.

A task analysis also would have revealed ways to describe the functions in terms users could recognize.

Additional training also might have improved the situation. However, training is expensive. Whenever there are large numbers of users to train or there is high turnover, it is generally more effective and less costly to design the system so it does not require extensive training.

Users reject system

Another system design that failed to account for how end users really work is a financial management system that was installed some years ago at a large, public sector organization. The system was designed primarily to provide information on bud-

Potosnak is senior consultant at The Koffler Group in Santa Monica, Calif., a firm that specializes in user interface design and evaluation. She is also human factors editor on the editorial board of *IEEE Software* magazine.

- **End users take route of least effort**
- **Task analysis pinpoints problems**
- **Two goals: useful and usable**

gets, expenditure estimates, actual expenditures, variances and finances in general.

Although the system was important to the organization's objectives, a study found that it was not being used by many departments. Some set up their own computer systems to perform the same functions. Others went back to using a manual system.

There were several problems in the system's design:

- It was designed chiefly for financial specialists, even though most end users had little expertise in finance. Many end users had difficulty understanding the special terminology.
- The functions primarily served the needs of the finance department, while the requirements of other departments were largely ignored.
- An estimated 64% of the end users complained of difficulty or frustration in trying to access information, and 20% had problems just logging off.
- End users lacked training. About 35% of users interviewed said they didn't even know there was a user's manual.

Take a step back

Solutions for this type of problem require what is called a systems approach. Rather than looking at the computer system as a tool for the financial department, it is useful to regard the entire organization. Trade-offs can then be made between personnel selection, training, tasks or procedures design and software design.

The options available under the systems approach include the following:

- **Personnel selection.** Hire only people who are familiar with financial tasks. This approach is impractical, because using the system is only a small part of most end users' jobs.
- **Training.** Train all personnel to do financial tasks. Since external departments make limited use of the system, extensive training in finance would not be particularly useful — other than for operating the system.
- **Task design.** Redesign the task so that only those with financial training have to use the system. To some extent, this redesign is taking place already by a process of natural selection. A few end users, who are both financial experts and well versed in the functions of their own departments, report no trouble operating the system. However, the majority of end users are required to use the system at least occasionally. Because they do not have the know-how to operate it smoothly, they simply use it as little as possible.
- **Software design.** Redesign the system so that financial task information is not necessary to use it. This solution is the most satisfactory one.

Abundant solutions

There are plenty of other ways to improve end-user productivity. User interface standards increase consistency across applications, reduce training requirements and improve ease of use.

Prototyping provides a concrete example or examples for users to interact with and evaluate. It helps designers deal with the "I'll know it when I see it" syndrome and avoid "That's not what I asked for" complaints. Iterative design allows systems developers to respond to changing or ill-defined user requirements.

> WHENEVER there are large numbers of users to train or there is high turnover, it is generally more effective and less costly to design the system so it does not require extensive training.

Usability objectives, set as system requirements, serve as benchmarks of system success and guide the design of user interfaces. Specify minimum requirements for learning time, transaction speed, error rates or user ratings of a system.

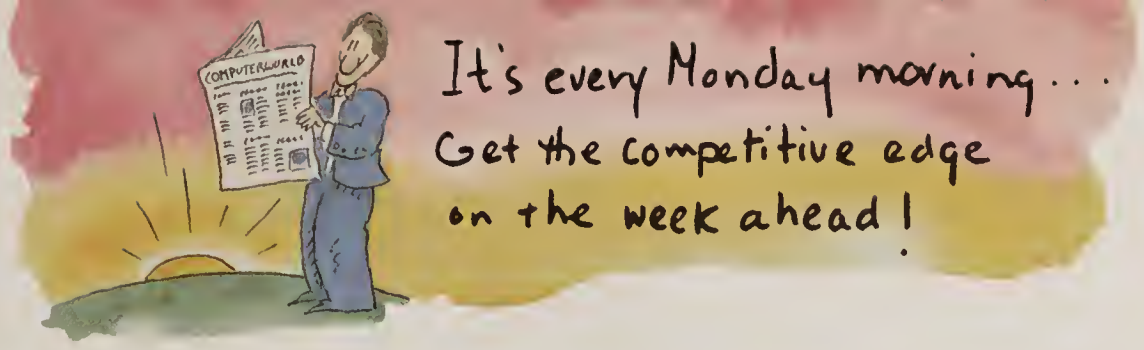
Usability testing involves having real users perform real tasks with a real system or a realistic prototype. Users' performance and attitudes are measured to determine how usable the system is, as well as how productive users are and how high their acceptance of the system is.

These techniques, along with task analysis and the systems approach, are tools of the trade for human-factors engineers working in the area of software design.

A growing number of software development groups are folding human factors into their design efforts and are reaping the benefits of their new-found knowledge of what end users really want. One spreadsheet vendor, for instance, achieved a 50% decrease in learning time and a 55% reduction in training costs simply by applying human factors guidelines to the design of its user interfaces.

Human-factors engineering techniques also helped improve one data entry system that has an installed base of more than 500 customer sites, created and sold by another large systems vendor. Controlled testing of the new design revealed a 25% reduction in user error rates, a 32% decrease in time spent correcting errors, a 25% to 30% reduction in transaction processing time and 75% fewer transaction cancellations and restarts.

Regardless of which techniques you choose, the overriding rule for increasing end-user productivity is this: Provide the right functions and implement them in usable ways. •



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MANAGEMENT

TAKING CHARGE

James Connolly

VDTs: seek mid-course

Life is one long line of caution signs. Highway signs say "Slow," the dry cleaner warns "Not responsible for items left over 30 days" and mothers say "Don't eat yellow snow."

Now make room for one more call for caution, tempered by a plea for compromise. The caution/compromise request involves one of the few computer-related issues that carries a sense of social import and emotion. No, the Micro vs. Mainframe and Unix vs. Proprietary Operating System debates do not qualify. Those boil down to the question of which corporate conglomerate will rake in the cash, not the issue of whether people will live well or die early. The issue at hand is VDT safety.

Contrary to what many people would like, the immediate question is not whether heavy use of VDTs is hazardous to one's health. Advocates of tight safety rules, including labor organizations, are armed with medical research that they say backs their position. Opponents such as equipment manufacturers and large user companies counter that the research is inconclusive or that proposed legislation is antibusiness.

Sometimes the rhetoric from the extremists on both

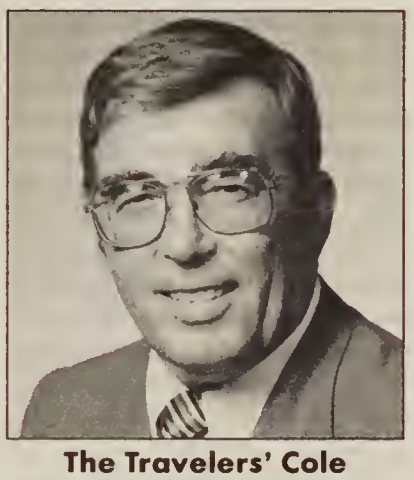
Continued on page 42

Common system works for Travelers officials

BY JAMES CONNOLLY
CW STAFF

HARTFORD, Conn. — The need for consistency, with every vice-president equipped with the same set of facts, is the foundation for an executive information system that builds bridges between departments, regions and business units at one of the world's largest insurance companies.

Executives at The Travelers Corp. have been recording 40,000 accesses per month on a system that, for the first time, provides 100 vice-president-level officials throughout the company with the same set of reports relating to areas such as sales, claims and investment fund performances. The system, which has been on-line since late 1986, features alphanumerical and graphical presentations. De-



The Travelers' Cole

velopment work began six weeks before the system went on-line and continues as The Travelers considers enhancements or new opportunities for similar capabilities.

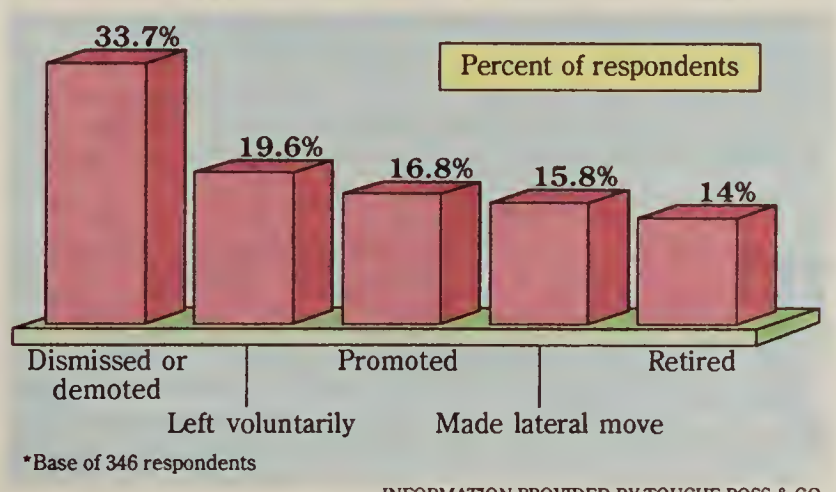
"The integration of the information saves them from going to different sources. The consistency is the big feature. There is

Continued on page 42

Data View

Why was the job open?

*Current chief information officers cite the fate of their predecessors**



*Base of 346 respondents

INFORMATION PROVIDED BY TOUCHE ROSS & CO.
CW CHART

Avon calling: MIS answers the bell

Systems chief oversees quick delivery response

BY JAMES DALY
CW STAFF

NEW YORK — When Frank Giannantonio took the wheel as director of information services at the highly successful Avon Products, Inc. — a $3 billion cosmetics giant that has been ringing doorbells since 1886 — he kept in mind the golden rule of the business world: If it ain't broke, don't fix it.

He quickly saw the need to develop a delicate balancing act that ensured the company's success with a forward-thinking information gathering strategy that did not step on the toes of tradition and proven success.

In his 18 months on the job, Giannantonio has maintained that balance. Working with a departmental budget that is less than 1% of corporate revenue, he has peppered a lean MIS arrangement with a clever mix of management savvy, business acumen and 20 years of MIS experience to continue the success of a company for which a doorbell is a calling card and a 100-page glossy product booklet constitutes shelf space.

Blush in a rush

With Avon calling in more than 50 countries throughout North America, Latin America, Europe and the Pacific, Giannantonio takes special pride in his department's contribution toward upholding the company's century-old pledge: to deliver any stick of Toffee Twist lipstick or Wild Country soap-on-a-rope to any avenue or atoll within seven days.

"Think about that," Giannantonio says, relaxing in his corner office overlooking Central Park and the Big Apple's famed Fifth Avenue. "To get a prize out of a cereal company often takes months, and we receive 10,000 orders a day at each of our five regional data centers."

To achieve this delivery rate, Giannantonio relies on a less-is-more MIS philosophy and a team of highly self-motivated subordinates in his 240-person department. "It's up to me to establish the direction and vision of where

Continued on page 42

PROFILE

Frank Giannantonio

Position: *Director of Corporate MIS at Avon Products, Inc.*
Mission: *Establish the direction and vision of information systems department; meld success of past with future strategies in supporting company's MIS needs.*

When technology blocks a promotion

BY J. A. SAVAGE
CW STAFF

NEW YORK — Surrounding themselves with technology may cost MIS professionals their careers, the head of an executive search firm said recently.

Dale Winston, president of Battalia & Associates, Inc., an executive search firm, warned that keeping on top of a career is more difficult for MIS professionals than for other executives. "It's because the job is technology-based, not career path-based. [MIS executives] tend to become so involved in learning what the newest technology is or solving a particular problem that they become highly susceptible to career mismanagement."

MIS managers should pull their heads out of the warm, comfortable sand of job security, keep an updated resume in their desks and be in a "constant mode of evaluation about where they are and what they're doing," Winston said.

With the insistent cacophony of mergers and acquisitions playing in the background, an MIS manager may be looking out for the company while the company disappears — along with the manager's job.

Amid any confusion, Winston admonished that MIS managers should look out for No. 1. "There ain't no tenure in corporate America," she said.

How can managers tell when their jobs are in trouble? They can begin by reading their boss, Winston said, noting, "Most people don't — they use the ostrich theory."

Winston cited five danger signals to consistently monitor:

- Your boss is not communicating with you, and you are one of the last to find out what is going on in the department.
- Your boss may be communicating with you, but is in disfavor with the powers that be, and you cannot disassociate yourself from that disfavor.
- You did not get a favorable review last time around.
- A peer is getting in good with the boss, to your discredit.
- Your company is under consideration for a merger or acquisition.

Be prepared

If any of these situations are apparent, follow up on them, Winston suggested. "Find out where you are perceived as weak. If the company is not giving you input, ask for it. Go to your boss. Go to the human resources department. Find out where they see you. If the company won't give you input, go to your peers. If the answers aren't satisfactory, start looking around for another job," she said.

"That doesn't mean that you necessarily have your paper on the street, but that you remain open to meeting people. Join professional organizations. If you get a call from a headhunter, find out what it's about. And don't even wait until you see these signals to build your networks up."

Winston said that this advice is applicable to all levels of management, from the beginning manager to the top executive.

"Just don't wait until you are umpty-ump years old and find you had been having so much fun at a particular project that when it's over, you are too."

Connolly

FROM PAGE 41

sides brings back memories of Chicken Little crying about the sky falling and a certain auto maker saying, "Don't worry, those Pinto gas tanks are just fine." There has to be a middle ground for which both sides can strive.

Middle ground

On a positive note, the reactions to the recent miscarriage study, in which The Kaiser Permanente Medical Group, Inc. found a higher than normal miscarriage rate among women working with VDTs 20 hours per week, was tempered by notes of caution by many people on both sides of the safety debate. Maybe that is a sign that, someday, the sides can meet in a spirit of compromise and understanding.

However, the hope that a compromise might be reached in 1990 or 1991 will not help the information systems manager who today has five or 100 or 10,000 terminals installed throughout a firm. If it is someday proven that terminals do cause eye strain, carpal tunnel syndrome, backaches or miscarriages, the employer could be held liable for years of neglect in failing to protect workers.

But those same managers could look like fools — unemployed fools, at that — if they run out to buy every ergonomic chair or VDT radiation screen/kitchen utensil touted on the late, late show: "It stops alpha rays, it stops gamma rays, it stops X-rays, it slices, it dices, it dials your telephone."

There may be a fairly safe ground that managers can stand on until the evidence is compiled. That safe ground is known as the commonsense approach, and it is something that cannot be measured in rems or ruled by legislators.

Common sense means managers recognize that there is a possibility of VDTs harming fetuses. So, management should — for humanitarian reasons, if not legal ones — at least try to find work away from VDTs for pregnant workers who request a move. It may not make sense to throw out all of the company's terminals and furniture or rip out millions of dollars worth of lighting.

However, it does make sense to gamble a few extra dollars per worker and take a little more time to evaluate ergonomic workstations and lighting when offices are being built or remodeled. It may even be worthwhile for a company to do its own research by tracking its own workers' health records or just listening to what the saner voices in the work force have to say.

Are VDTs dangerous? Maybe. Is legislation needed? Maybe. Is either side in the safety debate 100% right? Don't bet on it. Can user organizations do something until the above questions are answered? Definitely. They can use a little caution and do what makes sense for both the worker and the company. Overwise, there may come a day when their consciences and the verdict of a jury surface to haunt them.

Connolly is *Computerworld's* senior editor, management.

Travelers

FROM PAGE 41

one set of numbers, and everyone has agreed to that set of numbers," said Frank Cole, director of data processing in The Travelers' agency marketing group.

In the past, much of the information was available on-line only to limited numbers of people — such as those in the reporting region or business unit — and was delivered to others on paper at a later date. Even when delivered on paper, the numbers often were reported in different formats or may have gone through varied amounts of manipulation, depending on the group doing the reporting. Figures for commercial lines of insurance could not be compared with figures for financial services.

Getting everyone to agree on which numbers would be used was not always easy, Cole conceded. But when groups disagreed, their superiors or their superiors' superiors intervened to standardize the reporting structure.

Money talks

Getting everyone to accept and utilize the information system became easier, according to Cole, when management decided that the numbers in the system were the ones that would determine compensation such as bonuses and commissions. "Then everyone became very interested in it," Cole noted.

Bob Malek, a Travelers vice-president, called the executive information system "priceless," noting that The Travelers is an information-based company. He added that the raw data itself has almost no value. "It is when you convert that data into information so the knowledge worker can act on it that you get value," he said.

The information is available through more than 15,000 report screens with data maintained under IBM's DB2 on host computers and accessed on IBM and compatible personal computers in IBM 3270 emulation. The Travelers uses IBM's Dialogue Manager as an IBM Interactive Systems Productivity Facility front end and uses IBM's Application System to present the reports and graphs. Systems in the various groups are scheduled to generate periodic reports and to upload them to DB2, which converts into a single format diverse formats such as Information Builders, Inc.'s Focus, Lotus Development Corp.'s 1-2-3 and IBM's IMS.

A typical presentation might start with a menu offering users the opportunity to look at all lines of business or specific lines nationwide, presented numerically or through line charts showing The Travelers' performance for 1987, 1988 and the plan for 1988. Users then can get more detailed breakdowns and analyses by advancing deeper into the reports by striking a single key at a prompt.

The more detailed reports, for example, rank regions by performance and can be followed with rankings for individual offices, again for all lines of business or for individual lines. The figures may reflect the value of policies being written, the number and value of claims filed and settled or other business concerns, such as the performance of annuities. The system, which includes the name and telephone number of the manager responsible for each report, can flag abnormal numbers and has the potential to someday use expert systems to notify the appropriate executives when serious exceptions are detected.

Cole said The Travelers is now considering the addition of textual explanations for reports and the possible use of electronic mail for distribution.

Executive input

The project was carried out with the direct input of the executives responsible for the business units. "The way we do it is through prototyping, which is the key," Cole said. He cited the example of how the first screens were developed through ongoing work with the senior vice-president of financial services.

Developers and the executive spent a half hour discussing the financial services group's needs and goals. The developers designed 40 graphs, most of which were discarded, leaving five graphs as starting points for the development of more than 900 — relating to major products and subproducts — during a four-month period. Most of the back-and-forth of suggestions and questions was done through The Travelers' heavily used voice mail system.

One of the next steps for The Travelers is to make the executive information system more available through teleconferencing. About seven company sites equipped with projection display screens already have access to the system, and the company plans to offer it at up to 30 sites, according to Cole.

Avon

FROM PAGE 41

we're heading, but the managers are the ones in the trenches. They have a lot of responsibility," he says.

The sales setup is leaner than an eyebrow pencil: Approximately 200 doorbell-ringing representatives report to a district manager who works out of his home and is equipped with an IBM Personal System/2 Model 50 workstation. The field representatives feed their daily sales figures to the district manager, who then forwards the results to regional data-gathering outposts called "profit centers."

At these centers, a collection of IBM 4300 and 3090 host systems and Digital Equipment Corp. VAXs takes less than a day to invoice the orders, bill the customers and send shipping instructions to the warehouse and loading docks. "The only thing that slows us up is the Postal Service," Giannantonio jokes.

Although the arrangement has been working well since it was established in the mid-1970s, Giannantonio is not averse to giving new methods a whirl. "We've looked at technologies ranging from Touch-Tone order-entry systems to optical character recognition scanners," he says. The firm is even field-testing a personal order-entry terminal that looks like — what else? — a makeup compact. A field representative plugs it into a telephone, dials Avon to hook up to a voice response unit and then enters the order electronically.

Perhaps the inspiration for this commitment to a trim fighting machine stems from the brief term Giannantonio did as a Department of Defense programmer shortly after he received his master's in management science from New York University.

But he soon began hungering for a job in a profit-making organization and, after a brief period at a small consulting firm, joined Avon in 1974; he has held a variety of management positions, both in the U.S. and abroad.

One of his most important managerial lessons came in 1976

> "THE ONLY thing that slows us up is the Postal Service."
>
> FRANK GIANNANTONIO
> AVON PRODUCTS, INC.

when he, his wife and their three children moved to Northampton, England, where he began a two-year stint as an assistant in the development of a regional development center.

"I learned to never make assumptions," he admits. "Even though our business was the same, the English had different factors that drove them to excel, and I learned a lot about what drives people. Managing through motivation is the key to success; I'm only as good as the people who work for me. Our biggest strength at Avon is the ability to work as a team."

That teamwork continues to pay off. In addition to its regular catalogs, Avon publishes millions of special booklets that outline sales items for the coming two weeks — Giannantonio boasts that Avon's printing output is second only to *TV Guide*'s — for which his department has developed a trending model to handle the fortnightly demand bursts. "About four weeks before the sales begin, we send out a team of what we call 'trendsetter reps' to see what the interest in each product is," he says. "We then base our production on these trendsetter models."

Although the company's diversification into the home health care business, catalog clothing sales and retail cosmetics industry will present future information-gathering challenges, Giannantonio says the wheels of communication can be easily greased with a simple corporate understanding. "We need to elevate the information systems professional in the eyes of senior management," he says. "Instead of looking at MIS as just a necessary resource, we should be considered key players to consult with on a senior level when making business decisions. We're all in this together."

LOCAL HAPPENINGS

NORTHEAST

New York, July 11. Data Administration Management Association, New York Chapter. "Strategic Systems and Data Planning" and "Strategic Repositioning Methodology." Manufacturers Hanover Trust Co., 270 Park Ave., 3rd Floor Auditorium. Contact: DAMA New York Chapter, P.O. Box 984, Bowling Green, New York, N.Y. 10274.

MIDWEST

Chicago, July 26. Association for Systems Management's Chicago, Lincoln Land, O'Hare and Oakbrook Chapters. "When Should You Use An Expert System?" Midland Hotel. Contact: Terry Arter, 312-989-5591.

WEST

San Francisco, July 6. Association for Women in Computing, Bay Area Chapter. "Unix." Stagecoach Restaurant. Contact: Association for Women in Computing, Suite 1044, 41 Sutter St., San Francisco, Calif. 94104.

Phoenix, July 12. Independent Computer Consultants Association, Phoenix Chapter. "WORM Disk Laser Technology." Phoenix Sheraton, First St. and Adams. Contact: ICCA, PO Box 32115, Phoenix, Ariz. 85064.

INDUSTRY INSIGHT

Peter Bartolik

Election a bust for Big Blue?

IBM must be betting that George Bush will overcome the "wimp factor" and go on to beat Mike Dukakis in November's election for president of the United States.

Why else would the company issue the following statement: "We believe that anyone who is developing an information handling system would probably need to use an IBM patent."

If that isn't an argument in favor of breaking up the computer systems monolith, then I must be a Republican.

Now, nobody here or elsewhere has ever made a valid argument that IBM doesn't have the right to protect its patented technologies. But there have been many valid and logical arguments over the years that the Armonk pachyderm has an unhealthy concentration of the computer marketplace.

Now that's big

It is so powerful and so rich that it was able to best the forces of the U.S. Attorney General's office. It did so not by proof of law, but simply by being able to keep an antitrust suit locked up in paperwork for a decade until the Reagan revolutionaries arrived in Washington on a wave of free-market fervor and scuttled the attempt to split the company up.

In the post-Laffer Curve era, many look at IBM and ask: How can you call that thing a monopoly? Its recent financial record is almost laughable.

In fact, it is not a monopoly, although in specific areas of the industry it has near-monopoly control (mainframes) or holds the power to bend the industry to its whims (personal computers). And if history is the true judge, companies that have enjoyed an unhealthy concentration of power in an industry have never been noted for being fleet of foot in the long term. Rather, they have been recognized for their inherent bias toward stabilization and stagnation.

And now IBM has shown its true colors. All those energetic

Continued on page 48

Computer Associates slaps suits

Legal offensive has former Uccel employees looking over their shoulders

BY CLINTON WILDER
CW STAFF

DALLAS — Always known as an aggressive software marketeer, Computer Associates International, Inc. has also been flexing its muscles in the courtroom against former employees of Uccel Corp.

In at least four cases in the past few months, Computer Associates has sued or sought restraining orders against former Uccel employees. Computer Associates claimed that those workers violated Uccel's standard employment agreement prohibiting competition against the systems software firm for two years after leaving the company.

Software industry employment specialists and former employees not involved in legal action expressed surprise at Computer Associates' aggressive posture, particularly against employees now working for much smaller companies. Noncompete clauses are fairly standard for software company employees, but Computer Associates, according to some observers, has taken the broadest possible view of what constitutes competition.

'Publicity trade-off'

"Companies try to protect themselves by having employees sign it, but I don't see much enforcement" in the overall industry, said James Cox, a 20-year industry veteran and president of Cox, Evely & Associates, an executive placement firm in Swampscott, Mass. "It's usually a publicity trade-off — do you want to look like Goliath going after David?"

Bruce Rebmann, former director of consulting services at Uccel, said Uccel did not pursue such actions before it was acquired by Computer Associates last year — even when employees went to work for then-arch-rival Computer Associates, which acquired Uccel in 1987.

Other former Uccel employees agreed. But Sanjay Kumar, a Computer Associates vice-president of research and development, denied that the aggressive actions against former employees are unusual.

"With respect to all of those cases, the focus was what we viewed as an unfair competition," explained Michael McElroy, Computer Associates' secretary and assistant vice-president.

Case studies

Three cases have reached out-of-court settlements, and one is still pending. In one case settled last week, a former Uccel consultant on IBM's MVS said she was shocked when she received a restraining order, later modified by a judge, two months after leaving Computer Associates at the end of March.

"I left to do this on my own, and I never thought they would go after individuals," said Olivia Carmandi, now employed by MVS Training, Inc., a small Dallas-based firm offering systems consulting. "I couldn't go to any prospective Computer Associates customers, which is the world."

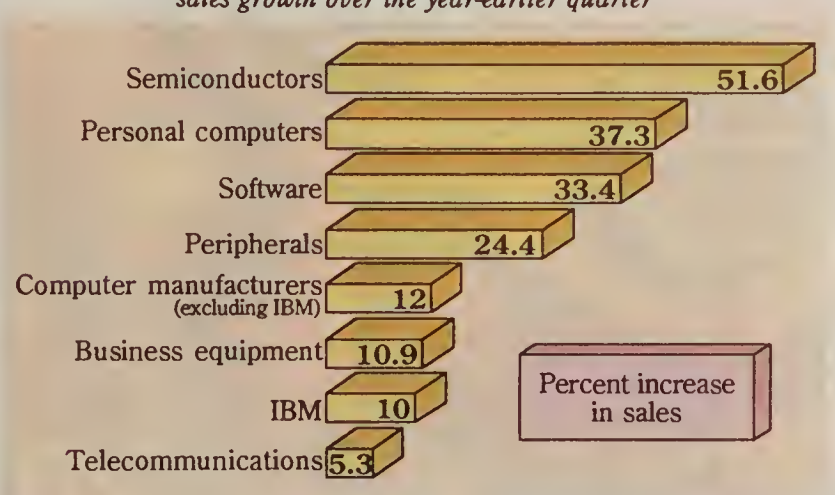
"With a company as profitable and successful as they are, I don't understand the motivation," Rebmann said. "Every MVS shop has Computer Asso-

Continued on page 48

Data View

Cashing in on chips

Semiconductors led computer industry segments in 1988 first-quarter sales growth over the year-earlier quarter



INFORMATION PROVIDED BY MCGRAW-HILL INFORMATION SYSTEMS CO.
CW CHART

Embattled Corvus files Chapter 11

BY PATRICIA KEEFE
CW STAFF

SAN JOSE, Calif. — After three years of red ink, repeated layoffs and rumored bankruptcy, a weary Corvus Systems, Inc. last week threw in the towel and filed for protection from its creditors under Chapter 11 of the Federal Bankruptcy Act.

Chapter 11 status may ease acquisition attempts. At least one suitor admitted to waiting in the wings to acquire the embattled supplier of local-area networks, which said it is talking to some interested parties.

The filing also enables Corvus to conserve cash and stay in business while it reorganizes and pursues investor funding. It has 120 days to submit a reorganization plan to the court, after which it can move to be acquired.

"We have always been on a tightrope as far as cash is concerned," admitted Joseph Rooney, Corvus's new president and chief executive officer, adding that the company cannot move forward without the protection afforded by Chapter 11.

Formerly a vice-president at the company, Rooney is replacing Lewis Lipton, who re-

Continued on page 48

Inside

- Zenith may unload consumer unit. Page 48.
- Claris buys Houston software developer Styleware. Page 48.

Former EDS president sues GM, Perot

BY ALAN ALPER
CW STAFF

NEW YORK — General Motors Corp., two of its directors and H. Ross Perot are being sued by a former Electronic Data Systems Corp. (EDS) president who claims the automotive company has violated the terms of its 1984 purchase of EDS.

The action, filed June 22 by Milledge A. Hart III in U.S. District Court and the New York Supreme Court, alleges that GM broke certain agreements that were intended to preserve EDS's autonomy.

These covenants were broken following GM's $750 million buy-out of EDS founder Perot in December 1986, when the computing services subsidiary was more tightly integrated into the corporation, according to the suit.

GM purchased Perot's GM Class E stock and associated notes at that time to remove him from GM's board and silence his criticism of the company, the suit contended.

By accepting the buy-out, Perot received "immediate and extraordinary financial benefit" that was not made available to other shareholders, the suit noted. The complaint, which seeks class action, further contended that GM Chairman Roger Smith and James H. Evans, a director, released false and misleading information to shareholders concerning Perot's ouster and GM's intent to preserve EDS's independence.

Short arms

GM's removal of Perot facilitated the integration of EDS into its corporate structure, according to court documents. Since EDS no longer operates at "arm's length" from GM — which accounts for about 75% of EDS's revenue — the unit is unable to charge a fee high enough to provide for adequate profit margins, the suit contended.

This has hurt the value of GM Class E shares, whose worth is pegged to EDS's profitability, the complaint asserted.

Perot was not available for comment. GM declined comment, citing corporate policy prohibiting public discussion of matters under litigation. A hearing date has not yet been set, Hart's attorney said.

Hart, a Dallas businessman, was one of EDS's original investors in 1962. An earlier suit filed against Perot and GM to stop the automotive company's purchase of EDS was dismissed in New York Supreme Court, a decision that was affirmed by the Appellate Court.

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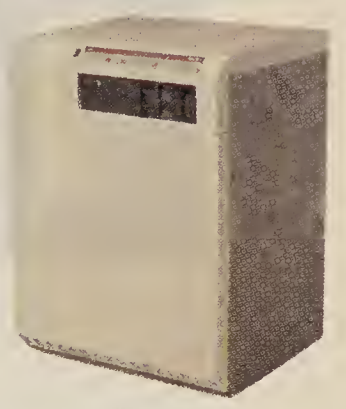

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CHAPTER ONE

THE BLACKEST HOUR IS MIDNIGHT

It was not a night fit for man or beast what with the sky being as black as ink and it starting to rain like cats and dogs. As if things weren't bad enough Jeffrey Whipple had to climb all the way up to the top of Bald Eagle hill in his snakeskin boots so new their smell reminded him of a car he once leased in Flagstaff, Arizona just to check things out because earlier in the day a message had gotten through that there was going to be trouble this night so he was feeling ominous as the dry wind whipped up the dust around his feet and wondering if he should go on or go back to camp when suddenly, he heard a twig crack behind him or thought he did but as he turned he didn't see anything except the black bleakness of the landscape.

Somewhere on the other side of Bald Eagle hill a dog started to bark and there were other noises which Jeffrey couldn't quite decipher but he decided that it was time to move on so he hitched up his courage and started the trek upwards again stepping over fallen [illegible] and rocks that impeded his path and made the

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INDUSTRY WEEK IN BRIEF

Apple Computer, Inc.'s software subsidiary **Claris Corp.** has made its first acquisition, purchasing Houston-based software developer **Styleware, Inc.** for an undisclosed sum. Styleware's operations will be moved from Houston to Claris's headquarters in Mountain View, Calif., and Styleware Chief Executive Officer Kevin Harvey has been appointed Claris's group product manager for integrated products.

Robert Kavner, president of **AT&T's** Data Systems Group, has joined the board of directors of **Sun Microsystems, Inc.** In January, Sun and AT&T reached an agreement allowing AT&T to purchase up to 15% of Sun over a three-year period and gain a Sun board seat. Vittorio Cassoni was originally nominated for the seat, but he was recently replaced by Kavner as head of data systems.

Systems Integrators, Inc. may once again become private if Chairman and Chief Executive Officer James P. Lennane has his way. Lennane, who holds 43% of the outstanding common stock of the Sacramento, Calif.-based electronic publishing systems maker, has made a written offer to its board of directors to pay $7.25 per share for all outstanding shares.

"The pressures on a public company to perform on a quarterly basis are inconsistent with a strategic requirement to invest in intensive and costly long-term product development," Lennane said in a statment.

A federal bankruptcy court has confirmed **Rand Information Systems, Inc.'s** plan of reorganization. The plan provides for the cancellation of all shares of the Alameda, Calif.-based software vendor's stock and the issuance of new common stock with detachable warrants that allow stock to be bought at 28 cents per share.

Telex Corp. will now be officially known as **Memorex Telex Corp.** following the recent completion of its merger with a subsidiary of London-based plug-compatible computer equipment maker **Memorex Telex NV.** In January, Memorex purchased about 90% of Telex's outstanding common stock.

Chelmsford, Mass.-based **Apollo Computer, Inc.** took a step toward establishing the first workstation product operation in the People's Republic of China when it signed workstation assembly contracts with two Chinese computer factories and their import/export companies. Both the Shanghai Computer Factory and the Fuijian Computer Factory will assemble Apollo's Series 3000 Personal Workstations from production kits shipped from an Apollo manufacturing plant in Exeter, N.H.

Zenith TVs tuning out?

Focus shifts to Data Systems computer division

BY ALAN J. RYAN
CW STAFF

GLENVIEW, Ill. — Private discussions are ongoing at Zenith Electronics Corp. concerning whether the company will rid itself of its troubled consumer electronics unit, a move analysts recently said could make the company more attractive to investors.

By shedding the consumer unit, Zenith would be able to concentrate all of its efforts on its burgeoning computer business, the analysts said. The consumer unit would likely bring in approximately $500 million, analysts speculated.

The consumer unit is probably Zenith's most vulnerable, according to Bruce Stephen, an analyst at International Data Corp. in Framingham, Mass. "Given that situation and the fact that Zenith Data Systems is doing quite well, it might make sense for the two divisions to part ways," he said.

Selling fever?

The consumer electronics unit sell-off talks reportedly have been going on for two years, one analyst said, but have recently become more serious, with Zenith telling interested parties that it is now seeking firm bids. One group reportedly interested in purchasing the consumer unit is the largest workers' union within Zenith.

The analyst, who wished to remain anonymous, added that Zenith's more serious approach may have led to the announcement two weeks ago that a group of New York-based investors had bought up 7.1% of the Zenith common stock, making it the single largest shareholder in the company [CW, June 27].

In the announcement, Brookhurst Partners Limited Partnership said it had purchased 1.85 million shares and that it would actively encourage management to enhance stockholder values.

One of the partnership's pursuits will likely include pressuring Zenith to sell the consumer electronics unit, analysts speculated.

The consumer unit, which makes Zenith the only remaining U.S.-based television maker, has been blamed for the company's decline in income over the past three years. The computer unit, which makes laptops and IBM Personal Computer compatibles, has continued on a path of steady growth, despite heavy competition from other U.S.-based manufacturers of compatibles and low-cost Asian clones.

Zenith markets its computers primarily to the military and educational markets.

Bartolik

FROM PAGE 43

inventors and entrepreneurs in the U.S. heartland who thought they were developing the next revolution in computer technology have merely been reinventing the wheel, in IBM's view.

This juggernaut, to its credit, spends billions of dollars on research and development and has earned its place in history as a developer of technological innovations. But let's face it, much of what its scientists sweat over will never see the light of day.

But those scientists can rest comfortably in the fact that even if no one is likely to ever benefit from their innovations, they will gain their lasting position in recorded history — on the dusty shelves of the U.S. Patent Office.

And, by the way, should someone else independently develop something that IBM has consigned to the dust heap, they'll have to cough up a hefty share of the profits. On the surface, a 1% to 5% royalty off the top may not sound like much, but in fact it can represent the razor-thin margin of survival to a start-up company that has no established product line to carry it along until the world realizes the value of its discovery.

Is this a healthy situation in a country that prides itself on its manufacturing and marketing prowess? No way, Jose.

For IBM to declare that anyone working in the field had better bring their lawyers down to Armonk for a little chitchat prior to rollout is, at best, a presumptuous claim. At worst, it represents a plague hanging over the spirit of innovation and preciousness that has helped make the U.S. the leading technology force in the world.

At best, it shows that IBM indeed has too much concentrated clout in the computer industry. At worst, it shows that our increasingly cumbersome patent system has turned into an anticompetitive labyrinth that requires a total overhaul.

At the least, it represents an interesting challenge to the legal and economic eggheads who have been whiling away their time in think tanks during the Reagan era. If the polls prove right, and the Democrats return to power, they have a mighty tempting target against which to carry out their theories debunking the magic of laissez-faire capitalism.

Bartolik is *Computerworld*'s News Editor.

Corvus

FROM PAGE 43

portedly resigned for personal reasons.

The timing of the announcement took industry observers by surprise, although most had long expected Corvus to end up in Chapter 11. "It's anticlimactic," said Joseph Seidler, a vice-president at Infonetics, Inc., a research firm in Santa Clara, Calif.

"We're telling customers that we're not in bankruptcy, we've just put the company in the hospital for a while," Rooney said.

The company said it expects to report a small profit for its fiscal year ended May 31 but anticipates a decline in sales for the fourth quarter.

Court papers list the company's total assets at $11.5 million and total liabilities at $9.6 million, of which approximately $3.6 million are secured. Thirty employees currently on mandatory leave of absence — in addition to another 24 — were terminated.

Founded in 1979, the company has been plagued primarily by its reluctance to embrace standards, analysts said.

"It's true our products are proprietary, but we've taken on a lot of de facto standards," Rooney said.

Another major stumbling block has been a combination of bad timing and a bad focus. Typically, whenever the firm has introduced a new technology or gambled heavily in a particular market, either a bigger vendor would come along and sweep Corvus to one side — as in the case of IBM with its Personal Computer and Compaq Computer Corp. with its Intel Corp. 80386-based box — or the market in question would turn sour.

Corvus has repeatedly sidetracked itself with unsuccessful forays into the PC market.

Over three years, these miscalculations have cost Corvus three presidents, a work force reduction from 500 to 79 employees, two straight years of losing quarters and the fumbled acquisitions of three companies.

Suits

FROM PAGE 43

ciates software. If you were prohibited from selling to them, you'd be out of your profession."

'No threat'

Rebmann said that the former Uccel consulting division, which he headed, records less than $5 million per year in revenue, compared with Computer Associates' $709.1 million in sales for the fiscal year ended March 30. Carmandi "poses absolutely no threat to those folks," he said. Rebmann, who is not a party to any legal action, is now an account executive at Dallas-based software developer CGI Systems, Inc.

Scott R. Speck, a former Uccel systems programmer, agreed in a settlement that he would not work on certain products for seven months at his new employer, Arlington, Texas-based Altai, Inc. Computer Associates originally sought to have Speck's Altai employment terminated pending a trial on its other allegations against him, which included taking proprietary documents and attempting to recruit other Uccel employees for Altai.

"We felt it was better to get a bad settlement than a good court ruling," Speck said. "Right now, I'm a product manager without a product because of the order. At the end of July, I'll be able to do what I was hired to do."

Showing restraint

In another case, Computer Associates accused Relational Technology, Inc. President Paul Newton of violating his separation agreement with Uccel, where he had been president, by hiring Mike Wilson, a former Uccel regional sales vice-president, as vice-president of sales.

Computer Associates successfully filed for a temporary restraining order prohibiting Wilson's employment, but the two companies eventually settled out of court.

"I was surprised; I don't even report directly to [Newton]," Wilson said. "I was in limbo for a week, then we got the restraining order removed in court so I could make a living. I was the first [Uccel employee] to work here. I guess they were worried about a mass exodus."

As reported earlier, a judge has enjoined two ex-Uccel salesmen working for the Vienna, Va., office of Duquesne Systems, Inc. from selling Duquesne's Dasdmon product [CW, June 13]. Their trial is pending.

Scrutinize government jobs

State or local government work has special rewards, drawbacks

BY SUSAN GRECO
SPECIAL TO CW

In state and local governments across the country, information systems are being used to crack down on drugs, help people get jobs, target misuse of public funds, monitor citizens' complaints — and more.

Contributing to the development of such applications can be a boon for MIS professionals. However, there are drawbacks to government MIS work, including the pay, which generally is less than in any other field except education, according to *Computerworld*'s annual salary survey (see chart).

Government workers can be subject to the vagaries of public finance. In Texas, state workers, reeling from the oil bust, have not had a raise in three years, says Berny Schiff, manager of Interagency Services for the State Purchasing and General Services Commission.

Some government MIS jobs require placement and promotion through the civil service. Bob Adams, a commissioner in the State of New York's Office of General Services, says for people not already in the civil service system, the only realistic routes to state MIS jobs are appointment to a top-level position or starting at the bottom.

Outside candidates must take a civil service exam, which is given once a year at most, Adams says. If they pass, their names go on a waiting list from which the top three candidates can be chosen for an opening.

Furthermore, in many states MIS is not considered as strategic as it is in business, and government MIS managers might have difficulty moving into the private sector, according to Michael Rottblatt, managing vice-president at executive search firm Korn/Ferry International in Stamford, Conn.

However, the right leadership can overcome many such shortcomings, Rottblatt says.

Support from the top

In Boston, Allan Stern, the city's director of MIS, says he is optimistic about opportunities for MIS professionals. "The City Council has recognized the need to attract talented, technical people to government because it is a way of cutting costs to the taxpayers and delivering more efficient services," Stern says.

Stern and his counterparts in other major cities are undertaking the kind of MIS expansion that leads to hiring at every level of the organization, he says. In Boston, MIS compensation ranges from $17,000 to $56,000, according to Stern.

Stern's views are shared by Haldis Toppel, manager of the information center for the city of Los Angeles, part of a data processing operation that serves 30,000 employees in 40 city departments. "Citywide, there are quite a few positions to fill. We are always looking for people," Toppel says.

As in the business world, government systems organizations are focusing on data bases, communications and end-user computing, according to managers in the industry.

As government MIS shops continue to customize end-user applications and interfaces, Toppel and others say the demand will increase for professionals versed in artificial intelligence, relational data base management systems and on-line transaction processing.

But Toppel says she turns away many people because they lack additional skills. "That is our struggle: to find the people that are able to deal with the technology and have an understanding of the business requirements and bring with them analytical skills." Communication skills are also key, she says.

In Los Angeles, the new position of end-user computing analyst is evolving. The position calls for all these talents, plus the potential to train users, Toppel says.

Currently, systems specialists with the city of Los Angeles make $28,000 to $41,000 a year, depending on their college degree, experience and test scores. Senior systems specialists, who manage systems specialists, conduct cost/benefit studies and analyze users' needs, earn $37,000 to $58,000.

Consulting network users

End-user computing is also the emphasis for Van Logothetis, director of telecommunications for Dade County, Fla. Logothetis says he oversees a new fiber-optics data network linking 4,000 employees with a central data center.

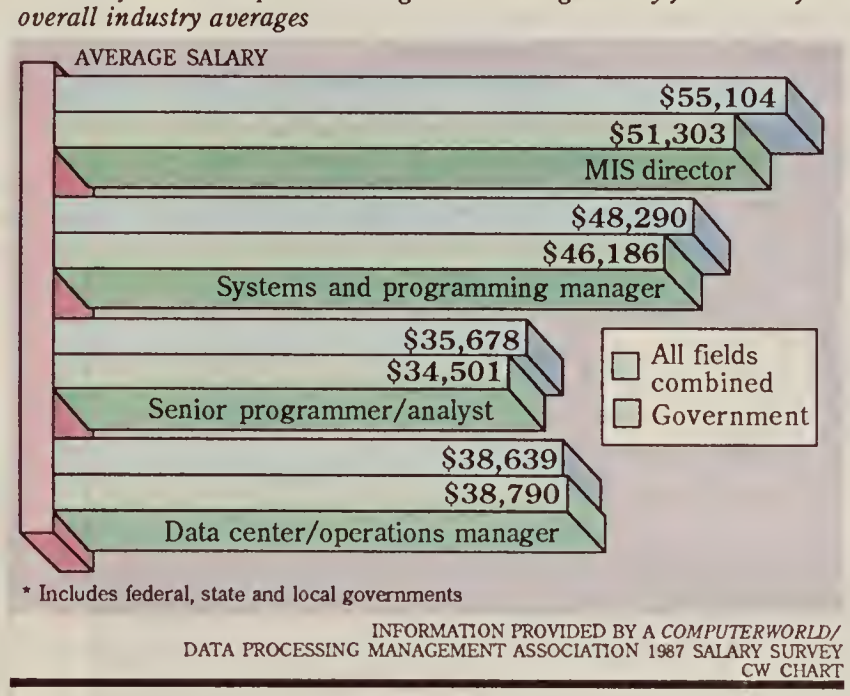
As more of the county's 20,000 employees join the network, Logothetis says he will be hiring MIS professionals who can create end-user products.

Logothetis says he will look for end-user computing consultants knowledgeable in expert systems and fourth-generation languages. The salaries would range from $30,000 to $45,000 for three to five years' experience, he says.

Greco is a free-lance writer and editor based in Boston.

Good enough for government work?

Salaries for selected positions in government generally fall short of overall industry averages*



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IBM processors drop in quarter

3081, 3083, 3084 experience significant declines in secondary market

BY MARY JAKUBOWICZ
IDC FINANCIAL SERVICES CORP.

During the second quarter of this year, the IBM 3081, 3083 and 3084 processor families experienced steady declines in secondary market value.

For example, the 3083 Model J, which was trading for approximately $220,000 retail in March, has fallen to $125,000 retail on the secondary market. This represents an approximate drop of 43% in a four-month period.

The 3081 Model K has followed the same downward path as the 3083 Model J, dropping roughly 33% since the end of the first quarter. The 3081 Model K is currently trading for $275,000 retail on the used market.

Smallest drop

The 3084 Model Q machine has experienced the most minimal decline among the machines in the 3081, 3083 and 3084 processor families.

In March, IDC Financial Services Corp. reported the 3084 Model Q was trading for $820,000 retail. Since that time, the used value of the Model Q has fallen to $670,000 retail on the used market.

The drop in secondary market value for the 3081, 3083 and 3084 families during second-quarter 1988 may be attributed to the following factors:

- Two- and three-year leases expiring, thus causing an oversupply of these processors on the secondary market.
- IBM's announcement of its new operating system, MVS/ESA, which does not run on the 3083, 3081 or 3084 machines.
- The increasing availability of used IBM 3090 machines on the secondary market; some users have opted to purchase used 3090s instead of 3081, 3083 and 3084 processors.

Market begins to stabilize

However, current IDC Financial Services research has revealed a slowing in the decline of the 3081, 3083 and 3084 used prices.

According to the company's contacts, activity in the high-end processor market is brisk.

Right now, the supply of these IBM processors is ample, and demand is good. For the most part, dealers appear to be having little trouble moving the 3083 Models J and JX, the 3081 Models K and KX and the 3084 Models Q and QX.

It appears that much of the 3081 activity is centered around the Model KX. This activity is a result of lower and mid-range IBM 4381 users moving to the used 3081 Model KX box, which is well-known for its cheap processing power.

> THE 3083 MODEL J, which was trading for approximately $220,000 retail in March, has fallen to $125,000 retail on the secondary market — an approximate drop of 43% in a four-month period.

In addition, IDC Financial Services research indicates that the supply of the 3084 Model Q, which was somewhat plentiful a few months ago, is beginning to tighten up as of late.

According to IDC Financial Services' contacts, the secondary market for the 3090 Models 200E and 400E is somewhat limited at the moment.

IDC Financial Services has set the retail current fair market value for the 3090 Model 400E at approximately 78% of retail. The Model 200E is trading for roughly 78% of its list price of $4,585,500 on the retail used market.

Upgrade costs more

Currently, a native 3090 Model 400E is trading for a lower price on the secondary market than a Model 400E that has been upgraded from a Model 200E.

IDC Financial Services fair market value quotes show roughly an $80,000 difference between a native Model 400E and an upgraded Model 400E. This difference is a result of the tight supply of the 3090 Model 200E on the secondary market.

For more information, contact IDC Financial Services Corp.'s Terri LeBlanc at 617-872-8200.

IBM mainframes

Current fair market value

	Date shipped	MIPS*	List price	Percent of list price
3083 Model J	1Q/1983	7.5	$2,625,731	5%
3083 Model JX	1Q/1984	8	$1,705,731	10%
3084 Model Q	4Q/1983	24.3	$6,091,462	11%
3081 Model KX	1Q/1984	15.1	$2,680,731	14%
3090 Model 200E	2Q/1987	30.8	$4,585,500	78%
3090 Model 400E	2Q/1987	55.8	$8,543,685	78%

* Millions of instructions per second

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	Closing price	Recent high	Recent low
IBM PC Model 076	$850	$950	$600
XT Model 086	$1,200	$1,200	$875
XT Model 089	$1,550	$1,650	$1,100
AT Model 099	$2,250	$2,450	$1,800
AT Model 239	$2,750	$2,900	$2,125
AT Model 339	$3,400	$3,700	$2,625
PS/2 Model 30	$1,525	$1,650	$800
PS/2 Model 60	$2,750	$3,100	$2,450
Compaq Portable I	$750	$800	$525
Portable II	$2,275	$2,375	$1,650
Portable III	$2,550	$2,775	$2,300
Portable 286	$2,250	$2,350	$1,675
Plus	$1,075	$1,100	$750
Deskpro 20-MHz	$1,450	$1,525	$975
Deskpro 286	$2,375	$2,425	$1,900
Deskpro 386	$5,100	$5,100	$4,600
Apple Macintosh 512	$650	$700	$575
512E	$850	$925	$650
Plus	$1,100	$1,100	$850
Plus 20-MHz	$1,500	$1,650	$1,350
SE	$2,000	$2,100	$1,625
SE 20-MHz	$2,500	$2,550	$2,050
II	$3,225	$3,925	$3,100
HP Laserwriter II	$1,300	$1,350	$1,150
Toshiba T5100	$4,500	$4,850	$4,000

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Training

Trainers aid development work

Getting involved from start heads off problems, encourages innovation

BY PAT TAYLOR
SPECIAL TO CW

Trainers helping develop systems. Sound unusual? It doesn't to Janet Mushrush, manager of product services at Online Computer Library Center (OCLC) in Dublin, Ohio, a nonprofit provider of data base search services to member libraries worldwide.

Mushrush believes that including trainers or documentation writers on system design teams makes development projects more successful.

Just as users see to it that their needs are taken into account in the design and development of a system, trainers can try to assure that training requirements are considered.

Finding problems

Conventional development teams often produce applications that are sound but create just enough confusion in the user interface to cause problems. For instance, a user command might access a screen that is titled differently from the command. Although the user is where he wants to be, he does not know it because the screen name differs from the one invoked. A trainer can spot such a problem in the development cycle.

After pondering the need for trainers in systems development, Mushrush found her ideas confirmed by consultant Robert Stahl of the Interface Design Group in Oakland, Calif., who developed similar views through his practice and experience.

Stahl believes that if problems are not addressed early in the development process, they can become magnified with time. Being familiar with systems and with users' needs, he says, trainers and documentation writers are invaluable for early detection of problems.

The concept of bringing trainers into systems design might sound great in theory, but what is involved in implementing it?

Voices of experience

Mushrush populates system design teams with at least one person experienced in training and/or writing documentation. Her specifications require that all members of the team share the goal of creating an easy-to-train and instructionally sound system.

Mushrush also finds it helpful to develop detailed "state transition tables" for users that outline specific steps they need to take to move from screen to screen.

At Online Computer Library Center, trainers take part in development from the beginning of the process, offering developers feedback and suggestions on the user interface.

JUST AS USERS see to it that their needs are taken into account in the design and development of a system, trainers can try to assure that training requirements are considered.

Early meetings

The trainers also meet weekly with their counterparts to discuss their work and share insights on projects. The trainers have the power to provide a final sign-off indicating that a system incorporates a human interface that is technically sound.

Upon completion of a project, the beta-test version and the courseware pilot are released concurrently.

Although initially suspect on the parts of system developers and upper management, this approach has proven successful in large measure because of cooperation of the team members, extensive planning, parallel development of software and courseware, continual questioning and cross-checking among members of the design team, Mushrush says.

Stahl calls for cooperation from management and a view of the organization that bridges systems development and support. Without them, he says, organizations will continue to be plagued by inadequate systems that require ongoing cleanup by training and support personnel.

Stahl says he believes that costs should be estimated on a corporatewide basis rather than on a department-by-department one, thereby avoiding fragmentation and the tendency to view system inadequacies as "the other guy's problem."

Stahl's formula for measuring costs takes into account coding and testing, documentation and training and any other requirements needed to ensure effectiveness of the system six months after delivery. In other words, he says he believes that the requirements should reflect the need for system usability.

Top-down commitment

Mushrush and Stahl agree that the development process must be approached from a top-down perspective. Upper management must be committed to cost savings and quality systems.

Also, developers must agree to writing usability into the requirements definition as well as specific and measurable objectives for evaluation.

All sides must perceive the value of the efforts by the others. Application developers need to accept responsibility for system effectiveness and hence begin to appreciate the training perspective and input, while the training and user-support staff should begin to appreciate the intricacies of the developers' task.

Taylor is an associate with the Center for the Study of Data Processing at Washington University in St. Louis.

COMPUTERWORLD

Training Sections

Turn to the Training section of COMPUTERWORLD's issues for an interesting editorial feature addressing these and other questions.

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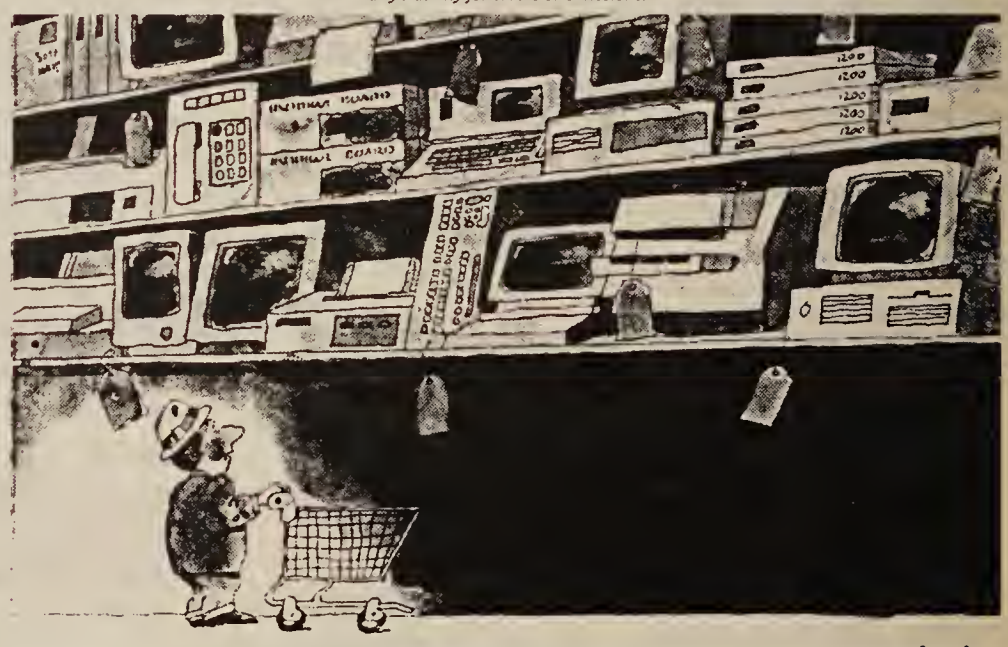

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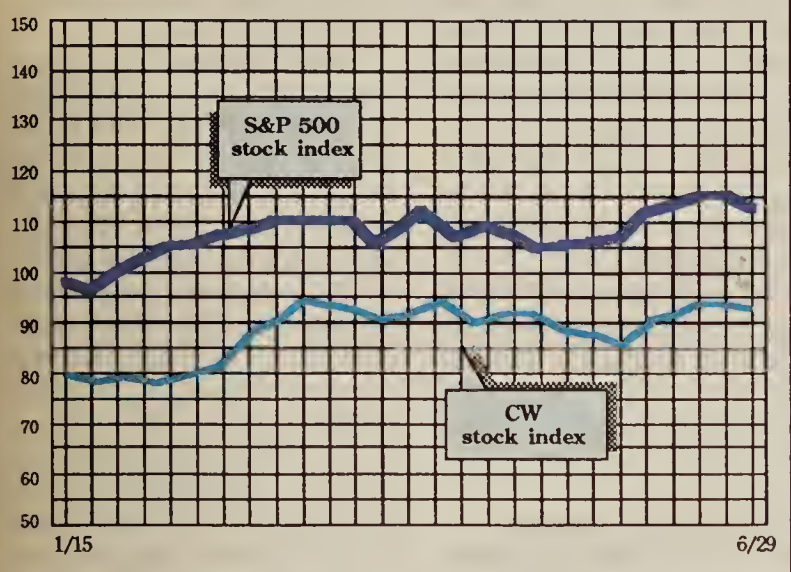

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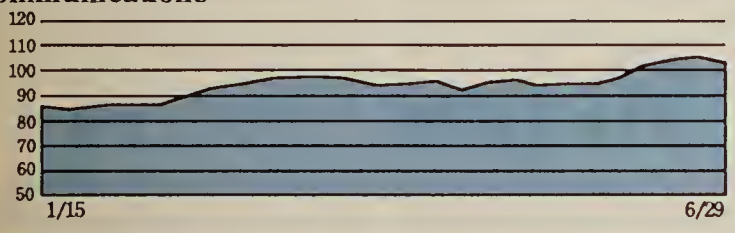
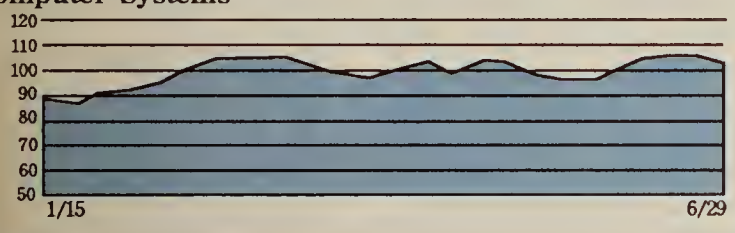
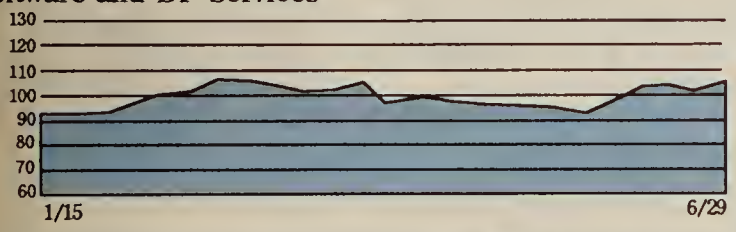


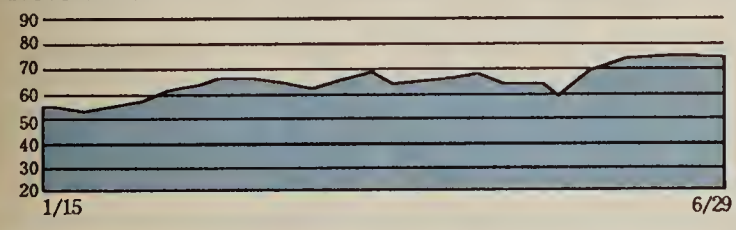
Computer Systems



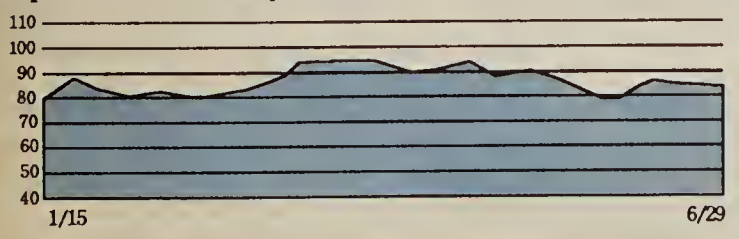
Software and DP Services



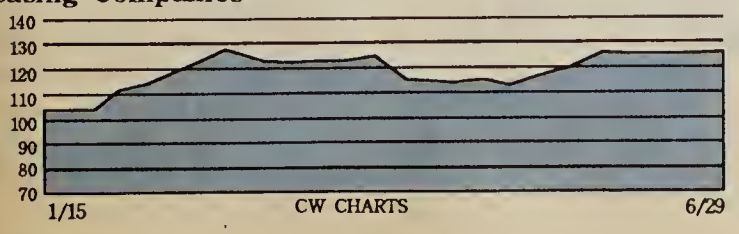
Semiconductors



Peripherals and Subsystems



Leasing Companies



CW CHARTS

Computerworld Stock Trading Summary

CLOSING PRICES WEDNESDAY, JUNE 29, 1988

EXCH		52-WEEK RANGE (1)		PRICE CLOSE JUNE 29 1988	WEEK NET CHNGE	WEEK PCT CHNGE
Communications and Network Services						
N	AMERICAN INFO TECHS CORP	100	74	90.13	-4.3	-4.5
Q	ANDREW CORP	18	11	16.50	-0.3	-1.5
Q	ARTEL COMM CORP	3	1	2.75	-0.3	-8.3
N	AT&T	36	20	26.50	-1.0	-3.6
Q	AVANT GARDE COMP INC	6	2	2.00	0.0	0.0
Q	AVANTEK INC	16	6	6.88	-0.1	-1.8
N	AYDIN CORP	35	16	20.00	0.4	1.9
N	BELL ATLANTIC CORP	80	61	70.63	-3.8	-5.0
N	BELLSOUTH CORP	44	29	42.75	-0.8	-1.7
Q	COMPRESSION LABS INC	6	2	4.50	-0.3	-5.3
O	COMPUTER NETWORK TECH	5	1	1.27	0.0	3.9
O	CONTEL CORP	40	25	34.38	0.3	0.7
Q	DATA SWITCH CORP	10	4	7.88	-0.1	-1.6
Q	DIGITAL COMM ASSOC	46	20	37.38	2.0	5.7
Q	DYNATECH CORP	32	14	22.00	0.5	2.3
Q	FIBRONICS INTERNATIONAL INC	7	2	3.75	0.0	0.0
Q	GANDALF TECHNOLOGIES	8	5	7.00	-0.3	-3.4
Q	GENERAL DATACOMM INDS	10	3	3.38	0.0	0.0
N	GTE CORP	45	29	38.38	-0.5	-1.3
Q	INFOTRON SYS CORP	14	5	12.75	0.0	0.0
N	ITT CORP	66	42	51.00	-2.0	-3.8
N	M A COM INC	16	7	10.38	-0.3	-2.4
Q	MCI COMMUNICATIONS CORP	15	7	13.88	-0.4	-2.6
Q	MICOM SYS INC	17	7	15.50	0.6	4.2
Q	NETWORK EQUIPMENT TECH INC	28	12	20.00	1.0	5.3
Q	NETWORK SYS CORP	13	7	11.63	0.0	0.0
N	NORTHERN TELECOM LTD	24	14	18.63	-0.5	-2.6
Q	NOVELL INC	30	12	28.50	0.6	2.2
N	NYNEX CORP	78	58	66.63	-1.5	-2.2
N	PACIFIC TELESIS GROUP	34	23	29.50	-1.4	-4.5
N	PARADYNE CORP	9	4	6.25	0.4	6.4
A	PENRIL CORP	5	1	4.75	0.0	0.0
N	PLESSEY PLC	38	23	27.81	-0.9	-3.3
N	SCIENTIFIC ATLANTA INC	20	8	13.75	-0.1	-0.9
N	SOUTHWESTERN BELL CORP	46	22	39.13	-0.8	-1.9
Q	3 COM CORP	26	12	20.63	0.8	3.8
Q	UNGERMANN BASS INC	15	5	12.31	0.0	0.0
N	U S WEST INC	60	43	55.63	-1.1	-2.0
Computer Systems						
Q	ALLIANT COMPUTER SYS	30	5	6.50	-0.5	-7.1
Q	ALPHA MICROSYSTEMS	6	3	6.00	0.1	2.1
Q	ALTOS COMPUTER SYS	15	9	9.13	0.0	0.0
A	AMDAHL CORP	56	19	53.63	-0.4	-0.7
Q	APOLLO COMPUTER INC	23	9	15.13	0.3	1.7
Q	APPLE COMPUTER INC	60	28	46.38	0.8	1.6
N	BOLT BERANEK & NEWMAN	25	12	17.00	-0.3	-1.4
Q	BRITTON LEE INC	4	1	2.38	-0.3	-11.6
N	COMPAQ COMPUTER CORP	79	34	63.25	0.8	1.2
Q	COMPUTER AUTOMATION INC	16	6	7.00	-0.5	-6.7
A	COMPUTER CONSOLES INC	10	2	8.75	-0.1	-1.4
Q	CONCURRENT COMP CORP	24	11	16.75	-0.3	-1.5
N	CONTROL DATA CORP DEL	38	18	26.50	0.4	1.4
Q	CONVERGENT TECH	9	3	3.06	0.0	0.0
Q	CONVEX COMPUTER CORP	17	6	8.25	-0.5	-5.7
N	CRAY RESH INC	119	47	83.75	-3.8	-4.3
Q	DAISY SYS CORP	12	5	10.88	0.0	0.0
N	DATA GEN CORP	37	16	23.50	1.1	5.0
N	DATAPOINT CORP	9	3	5.00	-0.4	-7.0
N	DIGITAL EQUIP CORP	200	99	114.38	2.0	1.8
N	FLOATING POINT SYS INC	12	3	3.00	0.3	9.1
N	GOULD INC	34	8	16.50	1.9	12.8
N	HARRIS CORP	41	22	29.00	-0.9	-2.9
N	HEWLETT PACKARD CO	74	36	54.75	2.9	5.5
N	HONEYWELL INC	91	49	69.00	-1.6	-2.3
N	IBM	176	102	127.00	4.0	3.3
Q	INFORMATION INTL INC	15	9	14.00	0.0	0.0
Q	IPL SYS INC	3	1	2.13	0.1	3.0
Q	MASS COMPUTER CORP	14	4	3.75	-0.3	-6.3
N	MATSUSHITA ELEC INDL LTD	228	103	191.00	-6.9	-3.5
Q	MEGADATA CORP	6	3	2.75	0.0	0.0
Q	MENTOR GRAPHICS CORP	39	14	34.25	-1.0	-2.8
N	NBI INC	14	4	4.38	0.3	6.1
N	NCR CORP	87	50	65.13	-0.8	-1.1
N	PRIME COMPUTER INC	31	12	15.50	-0.4	-2.4
Q	PYRAMID TECHNOLOGY	15	5	14.75	-0.5	-3.3
Q	STRATUS COMPUTER	36	15	29.25	0.5	1.7
Q	SUN MICROSYSTEM INC	45	14	37.25	-1.0	-2.6
Q	SYMBOLICS INC	5	1	1.19	-0.1	-5.0
Q	SEQUENT COMPUTER SYS INC	20	9	17.13	-1.0	-5.5
N	TANDEM COMPUTERS INC	37	16	20.13	-0.3	-1.2
N	TANDY CORP	57	28	47.38	-0.8	-1.6
N	ULTIMATE CORP	37	12	13.25	0.4	2.9
N	UNISYS CORP	48	24	35.50	-1.6	-4.4
A	WANG LABS INC	19	10	10.88	0.3	2.4
Software & DP Services						
Q	ADVANCED COMP TECH	6	1	1.19	0.0	0.0
N	AGS COMPUTERS INC	30	11	27.13	1.0	3.8
Q	AMERICAN MGMT SYS INC	20	9	15.75	-1.0	-6.0
Q	AMERICAN SOFTWARE INC	19	6	14.00	0.0	0.0
N	ANACOMP INC	12	4	11.13	0.6	6.0
Q	ANALYSTS INTL CORP	10	4	8.00	0.1	1.6
Q	ASHTON TATE	33	13	26.00	-1.0	-3.7
Q	ASK COMPUTER SYS INC	16	6	14.75	0.6	4.4
Q	AUTODESK INC	34	12	28.25	-2.0	-6.6
N	AUTO DATA PROCESSING	55	16	39.75	-0.4	-0.9
Q	BOOLE & BABBAGE INC	12	5	9.00	-0.3	-2.7
Q	COGNOS INC	17	4	5.38	-0.6	-10.4
N	COMPUTER ASSOC INTL INC	37	15	29.00	-1.8	-5.7
Q	COMPUTER HORIZONS CORP	15	7	10.50	-0.4	-3.4
N	COMPUTER SCIENCES CORP	73	38	43.63	0.4	0.9
N	COMPUTER TASK GROUP INC	16	9	11.88	-0.9	-6.9
Q	COMSHARE INC	27	12	19.50	0.8	4.0
N	CULLINET SOFTWARE INC	14	4	8.25	0.1	1.5
Q	DUQUESNE SYS INC	23	10	19.25	0.0	0.0
A	DATA ARCHITECTS INC	16	7	13.75	0.0	0.0
N	GENERAL MTRS (CLS E)	51	30	37.88	0.1	0.3
Q	HOGAN SYS INC	14	3	3.88	0.5	14.8
Q	INFORMIX CORP	31	12	23.50	0.5	2.2
Q	INTELLICORP INC	9	2	2.88	0.1	4.5
Q	KEANE INC	16	6	10.50	-0.8	-6.7
Q	LOTUS DEV CORP	40	19	23.38	1.8	8.1
Q	MANAGEMENT SCI AMER	14	6	11.38	3.4	42.2
Q	MICRO PRO INTL CORP	7	2	2.56	0.1	5.1
Q	MICROSOFT CORP	79	37	65.75	-1.3	-1.9
Q	MORINO ASSOCIATES INC	20	7	18.00	1.5	9.2
Q	NATIONAL DATA CORP	34	20	23.25	-0.1	-0.5
Q	ON LINE SOFTWARE INTL INC	22	6	6.63	0.1	1.9
Q	ORACLE SYS CORP	21	8	20.13	1.4	7.3
N	PANSOPHIC SYS INC	28	11	15.00	0.4	2.6
Q	POLICY MGMT SYS CORP	30	15	24.75	1.5	6.5
Q	PROGRAMMING & SYS INC	14	7	11.88	0.1	1.1
Q	REYNOLDS & REYNOLDS CO	38	14	18.25	0.0	0.0
Q	SEI CORP	22	10	21.25	1.3	6.3
Q	SHARED MED SYS CORP	30	19	21.88	0.4	1.7
Q	SAGE SOFTWARE INC	17	5	5.88	-0.3	-4.1
Q	SOFTWARE PUBG CORP	23	5	22.75	0.4	1.7
A	STERLING SOFTWARE INC	12	6	6.63	0.0	0.0
Q	SUNGARD DATA SYS INC	20	10	18.75	-0.3	-1.3
Q	SYSTEMATICS INC	33	19	32.75	0.3	0.8
N	SYS. SOFT INC	24	7	20.00	0.8	3.9
Q	VM SOFTWARE INC	24	7	16.00	2.8	20.8
Semiconductors						
N	ADV MICRO DEVICES INC	25	8	16.25	0.3	1.6
N	ANALOG DEVICES INC	24	8	14.88	-0.1	-0.8
Q	ANALOGIC CORP	13	5	7.88	0.5	6.8
Q	INTEL CORP	42	18	36.25	-0.4	-1.0
Q	LSI LOGIC CORP	15	7	12.75	-0.3	-1.9
N	MOTOROLA INC	74	35	54.00	0.1	0.2
N	NATL SEMICONDUCTOR	22	10	14.38	-0.3	-1.7
N	TEXAS INSTRS INC	80	36	49.25	-0.8	-1.5
A	WESTERN DIGITAL CORP	30	11	15.25	0.1	0.8
Peripherals						
Q	ALLOY COMP	13	2	2.38	-0.1	-5.0
N	AM INTL INC	9	3	5.13	1.1	28.1
Q	AST RESH INC	21	6	15.75	0.3	1.6
Q	AUTO TROL TECH CORP	7	3	5.13	-0.1	-2.4
Q	BANCTEC INC	14	5	7.88	-0.1	-1.6
Q	CIPHER DATA PRODS INC	12	4	9.75	0.6	6.8
A	COGNITRONICS CORP	5	2	2.94	0.2	6.8
N	COMPUGRAPHIC CORP	28	19	26.88	0.0	0.0
A	DATAPRODUCTS CORP	24	7	10.38	0.4	3.8
A	DATARAM CORP	8	5	7.38	-0.1	-1.7
N	EASTMAN KODAK CO	71	39	44.50	-1.4	-3.0
Q	E M C CORP MASS	29	6	5.88	-2.1	-26.6
Q	EMULEX CORP	9	4	7.00	0.1	1.8
Q	EVANS & SUTHERLAND	35	14	15.00	0.0	0.0
Q	ICOT CORP	8	3	3.63	0.5	16.0
Q	INTERLEAF INC	24	11	12.38	-0.9	-6.6
Q	IOMEGA CORP	4	1	4.19	0.1	1.5
Q	LEE DATA CORP	7	3	3.25	-0.3	-7.1
Q	MASSTOR SYS CORP	6	1	2.19	-0.1	-2.8
Q	MAXTOR CORP	20	6	12.00	-0.9	-6.8
Q	MICROPOLIS CORP	40	13	17.75	0.3	1.4
Q	MINISCRIBE CORP	17	5	12.13	0.6	5.4
N	MINNESOTA MNG & MFG CO	84	45	65.63	0.6	1.0
A	MSI DATA CORP	19	8	14.75	0.3	1.7
Q	PERSONAL COMPUTER PRODUCTS INC	7	4	5.25	-0.4	-7.7
Q	PRIAM CORP	5	1	1.88	0.0	0.0
Q	PRINTRONIX INC	13	7	10.00	-0.1	-1.2
N	QMS INC	27	8	8.50	-1.1	-11.7
Q	QUANTUM CORP	19	8	11.00	0.0	0.0
Q	RAMTEK CORP	6	1	1.06	-0.1	-5.5
N	RECOGNITION EQUIP INC	21	6	8.25	0.9	11.9
Q	REXON INC	11	4	6.88	0.0	0.0
Q	SCAN TRON CORP	17	7	15.50	0.0	0.0
Q	SEAGATE TECHNOLOGY	35	10	17.88	0.6	3.6
N	STORAGE TECH CORP	4	1	1.88	0.1	7.1
Q	TANDON CORP	6	1	2.25	-0.1	-2.7
A	TEC INC	6	3	3.50	-0.3	-6.7
N	TEKTRONIX INC	41	21	25.38	-1.0	-3.8
Q	TELEVIDEO SYS INC	3	1	1.13	0.0	0.0
N	TELEX CORP	75	30	49.00	0.8	1.6
Q	WYSE TECH	40	11	20.38	1.1	5.8
N	XEROX CORP	85	50	54.50	0.1	0.2
Q	XIDEX CORP	15	5	5.50	-0.1	-2.2
Leasing Companies						
Q	CAPITAL ASSOCIATES INTERNATIONAL INC	6	3	4.88	0.0	0.0
N	COMDISCO INC	10	4	6.63	0.63	0.11
N	CONTINENTAL INFO SYS	37	12	24.25	0.37	0.02
Q	PHOENIX AMERN INC	13	5	6.00	-0.25	-0.04
Q	SELECTERM INC	5	2	3.13	0.25	0.09

EXCH: N = NEW YORK; A = AMERICAN; Q = NATIONAL; O = OVER-THE-COUNTER; S = SPLIT

O-T-C PRICES ARE BID PRICES AS OF 3 P.M. OR LAST BID
(1) TO NEAREST DOLLAR

Grab bag

Chitchat of takeovers induces speculative bedlam on the Street

The rumor mill was grinding overtime last week on Wall Street after one takeover offer and the hint of another sent several major issues scurrying. Although Management Science America, Inc. (MSA) rejected a $191 million buy-out offer from Computer Associates International, Inc., its stock shot up [see story page 1]. MSA gained 4¾ points to finish Thursday at 12¼, and Computer Associates gained half a point to 29½.

Lips were also buzzing that Unisys Corp. would make a bid for Data General Corp., although neither firm saw much financial gain from the talk. DG finished up ⅞ of a point to 23⅝, while Unisys slipped 1¼ points to 35¾.

In other action, Compaq Computer Corp. gained 4¼ points to 65⅛; Hewlett-Packard Co. rose 2⅝ points to 55¾; IBM was up 2¼ points to 127⅜; Lotus Development Corp. grew 2 points to 23¾; Microsoft Corp. gained 1¾ points to 67; and Digital Equipment Corp. rose ⅞ of a point to 114⅞. The few losers included National Semiconductor Corp., off 1⅝ points on the heels of disappointing quarterly results and Sun Microsystems, Inc., down a quarter of a point to 37½.

JAMES DALY

IBM pushes RISC case on skeptical competitors

BY JAMES A. MARTIN
CW STAFF

The hot reduced instruction set computing (RISC) industry got even hotter last week with the news that IBM is telling competitors they may be infringing on its RISC patents and will have to pay IBM licensing fees of between 1% and 5% of sales.

Analysts and hardware makers reacted skeptically to the revelations, saying they doubted that the underlying concepts of RISC are patentable. Some attributed IBM's aggressive posture to an attempt to freeze the market while the company gets its own competitive strategy in gear.

"It's like Coke asking Pepsi for royalties because Pepsi came out with a diet cola, too," said Brad Smith, a computer architecture analyst at Dataquest, Inc. in San Jose, Calif. "RISC is like the reduced calories in a soft drink — it's just a concept."

"Reminds me of Apple's lawsuit against Microsoft and HP," observed Adam Cuhney, an analyst at Kidder, Peabody & Co. in New York. "Looks like IBM is trying to slow down the competition and make it more difficult for them."

Just a reminder

IBM quietly began contacting its competitors in the RISC industry about two months ago, reminding them that IBM holds well over 12 RISC patents, has some 100 RISC-related patents pending and will license its patents for 1% to 5% of sales revenue, according to Michael Starks, an IBM spokesman in Armonk, N.Y.

The move is part of IBM's effort to assert its patents across the board, Starks explained. In April, IBM hiked royalty rates on its more than 9,000 patents, including those relating to the Personal System/2 and RISC. The company said its patents would be available "to everyone, under reasonable terms and conditions" [CW, April 11].

Although IBM has claimed it invented RISC, others said the corporation's efforts were only a part of the picture. Pioneering RISC development was also done at both the University of California at Berkeley and Stanford University in Palo Alto, Calif., in the early 1980s.

Several computer makers with RISC-based systems said their technologies were developed using components of the Berkeley or Stanford public domain technologies.

In addition, those companies with a RISC system — including Sun Microsystems, Inc., Hewlett-Packard Co. and Mips Computer Systems, Inc. — claimed their RISC technologies are proprietary and unique.

For example, a Sun spokesman said Sun's Scalable Processor Architecture was built around the register-dependent RISC technology devised at Berkeley. The spokesman said Sun's RISC most likely does not infringe on any IBM patents as far as can be determined. He said IBM has not yet contacted Sun regarding its RISC patents.

IBM's Starks said the company's RISC patents involve "hardware, compilers and operating systems," but he did not elaborate. He said the nature of the patents was outlined but not completely divulged in the patent notification letters.

Abstract ideas

Observers said RISC is a difficult area to patent, as it relates more to a a concept than to a specific technology. The goal of RISC is to process one computer instruction per cycle, according to Frank S. Madren, director of systems marketing at Mips. "It's possible that 10 different people could build machines that accomplish that and patent their techniques, yet all those machines would be different."

None of IBM's RISC technology appears to be patentable, according to Nathan Brookwood, an analyst at D. H. Brown Associates, Inc. in Santa Cruz, Calif., which tracks RISC and other emerging technologies. "If IBM had invented some unique instruction that others copied, then it would be an issue."

Brookwood said IBM's motive must be "to obfuscate rather than to assert intellectual property rights. IBM recognizes how important RISC has become, and if they can delay development in the market or the progress of someone coming into the market, then they've benefited."

IBM did not seek RISC royalties until now because there were not enough products on the market to warrant the action, Starks said. "RISC is relatively new, and it's just now gaining attention in the industry," he added.

Starks denied that IBM is seeking to dominate the RISC industry. "It all boils down to the question of whether or not a patent is being used, and, if so, has it been licensed?" he said. "We're not targeting a particular type of technology or area of the industry or geographic region or segment of our patent portfolio. We are trying to apply our patent licenses consistently and equitably."

Dry

FROM PAGE 1

rologists — led by Irving P. Krick, the man who predicted the weather for the invasion of Normandy in June 1944 — have said long-range forecasting is so easy it can be done with a PC. Krick, president of the American Institute of Aerological Research in Palm Springs, Calif., said he was the first meteorologist to use computers for forecasting.

The first machine in such use, he said, was a Univac 120 in the early 1950s. Now, Krick has developed a program for a PC by observing decades worth of weather maps indicating recurring atmospheric phenomena.

"It revealed that the planetary wind system moves with some regularity," Krick said. He said he does not issue straight weather forecasts but rather "draws weather maps like the kind you see on TV."

Krick's subscribers include not only television weather reporters but commodities traders and energy utilities.

Krick, like other meteorological consultants, still gets base data from the weather service, which is available by telephone for a subscriber fee. Weather consultants receive weather map grid code on a real-time basis for a fee of between $3,000 and $5,000, depending on the exact service, according to Ed Gross, chief of constituent affairs at the weather service.

Any neighborhood meteorologist could hook up to this service, Gross said, "but Joe Meteorologist wouldn't want the aggravation when he could hook up to one of the private services for $50."

There are at least two other PC-based programs the federal government uses to try to give long-range meaning to weather service predictions; both have yet to be released publicly.

A program from the U.S. Department of Agriculture simulates sequences of weather based on current predictions and model crop yields. This Weather Generator Program, which was developed by research hydrologic engineer David Woolhiser, makes a probabilistic model for several crops — but, so far, only for South Dakota.

The program manual will be published along with about 500 copies of a floppy disk and distributed by the department sometime in the future, Woolhiser said.

When will hell freeze?

Another forecasting simulation tool, the Probability Month Temperature Degree Day Outcome, was developed by Richard Lehman, a weather service physical scientist. When not predicting weather, this PC-based DOS model will give the user probabilities of a particular outcome — like the chances of having a 100-degree day in the middle of winter — for 123 areas across the country.

Although the weather service does not plan on sending out "zillions of diskettes," the Probability Month Temperature Degree Day Outcome will probably be made available through subscription services, Lehman said.

The difficulty with long-range predictions is not just the number of variables that must be factored in but that scientists are not yet equipped to measure all variables and are not even sure what all the variables may be.

"You have to predict each variable as well as their interactions," the National Weather Service's Gilman said. These variables include soil moisture, ice cover, underlying ocean temperatures and effects as delicate as cloud cover. "We can't predict any of these well, and particularly their interactions."

Gilman did say that the weather service is working on the problem and that it will "require the biggest computer available." That rules out the department's Cybers, which are both running at full capacity.

In the meantime, look out the window; your forecast may be about as good as the government's. As Gross says, "a lot of it is guesstimates."

Weather — or not

We don't have any pictures of 100-year-olds on their birthdays, but here is the forecast for the rest of the summer, brought to you by some batch processing and several human forecasters.

Don Gilman, chief of the National Weather Service's prediction branch, delivers it thusly: "The hottest weather is moving to the Southeast from its position in the Plains, although the Plains are tilted to the hot side because the ground is so dry. . . . Dryness in the extreme Southeast, from the Appalachian Mountains to the coast. . . . Coolness in the Rockies and Great Basin."

J. A. SAVAGE

Mips elbows into mid-range market

BY J. A. SAVAGE
CW STAFF

SUNNYVALE, Calif. — Breaking out of its semiconductor and components image and into the crowded mid-range systems market, Mips Computer Systems, Inc. will unveil a 20 million instructions per second (MIPS) system. Tomorrow's announcement is close on the heels of the May introduction of a low-end 9-MIPS machine and rounds out the firm's systems offerings.

"There's a serious performance edge, but there are lots of competitors," said Brad Smith, an analyst at San Jose, Calif.-based Dataquest, Inc.

While the lower end machines are aimed at general-purpose computing, Mips is positioning its high-end computer in the technical market. All four of its beta-test sites are in academic or government research facilities.

Mips' third system, the M/2000, has an average performance of 20 MIPS, comes with a 3.6 million floating-point operations per second DP Linpack and costs $118,000, Mips said.

The system is based on the company's R3000 processor, which debuted four months ago and which Mips claims runs up to 50% faster than other reduced instruction set computing (RISC) processors.

No outside verification of the benchmarks is available, but the company is trying to legitimize the accuracy of its own tests. "The benchmark summary is thicker than the press release," Smith said.

All of Mips' systems run AT&T's Unix System V operating system and are based on RISC technology. Unlike IBM, Mips relies heavily on its compilers for productivity, said Frank Madren, a Mips marketing manager. In addition to the standard C compiler, Fortan, Pascal, Ada, PL/1 and Cobol are available.

As one of the first companies to use RISC technology in 1984, Mips supplied components and chips to computer makers, including Silicon Graphics, Inc. and Tandem Computers, Inc. In late 1987, Mips spun off its components division to concentrate on building computer systems.

Following the announcement in late June that IBM would pursue litigation over RISC patent infringements, Mips is reviewing its development files, Madren said.

IBM rearranges to tune of $600M

Summer cleaning involves plant consolidations, staff redeployments

BY JAMES DALY
CW STAFF

ARMONK, N.Y. — IBM detailed its latest round of corporate housecleaning last week with the announcement of a $600 million combination of plant consolidations and staff redeployments that it said will probably reduce its work force by 3,000 to 4,000 people.

The restructuring simultaneously hits some 10,000 workers in manufacturing operations and headquarters staff and is expected to be completed by the end of next year.

IBM Senior Vice-President Terry Lautenbach said the rearrangements taking place among its 228,000 domestic employees will trim both manufacturing costs and product cycles and were initiated by recent technological advances that make it quicker and easier to assemble products.

But the company has also recently gone into a period of stark self-examination after a salvo of losing quarters and sluggishness in its backbone mainframe market cut deeply into its pocketbook.

IBM Chairman "John Akers is simply trying to right his predecessor's wrongs," claimed Bob Djurdjevic, president of Annex Research in Phoenix. "When Akers took over in 1985, he found an IBM that had overexpanded tremendously. The actual demand for the company's computers far exceeded the manufacturing capacity they had built up."

Offer they can't refuse

Although all of the displaced workers have been offered similar positions at the industry giant's new location, IBM is hoping for a head-count reduction by dangling a generous carrot to entice workers to leave, analysts said.

Most manufacturing employees who do leave the company will be offered two years' salary, a bonus of $25,000 and career counseling, placement assistance and a transitional medical and dental plan.

Headquarters employees who leave will receive four weeks' salary for each year of service — up to a maximum of two years' salary — as well as a similar employment assistance and transitional medical and dental plan.

Since 1986, IBM workers have weathered some of the most sweeping changes in the firm's history. Last year, the company offered a generous bonus package for early retirement; 15,000 people accepted. At the same time, it chopped 8,200 staff jobs and 16,000 manufacturing jobs and was retraining many employees so it could add 11,000 to its sales force and 7,700 to its programming operations.

Benefits seen

The moves apparently have begun to bear fruit, with mainframe profit margins finally rising last year and the company reporting strong first-quarter results. Still, expenses have been slow to come down, and competitors continue to put pressure on IBM's low- and high-end products.

Are these changes enough? "We're not ruling anything out at this point," one IBM spokesman said.

Others put it a little more lucidly. "It depends on how well IBM does financially," Djurdjevic said. "I think they'll wait for the dust to clear and some more financial results to come in before they expand on the magnitude and the frequency of future changes."

IBM said 1,600 jobs will be dissolved in Boca Raton, Fla., the birthplace of its original Personal Computer as well as a large manufacturing site for high-end models of the Personal System/2 family.

During the next year, the PS/2 manufacturing facility in Boca Raton will move to another manufacturing plant in Raleigh, N.C., at which low-end models of the PS/2 line are now produced. That site will become the sole PS/2 manufacturing center in the U.S., an IBM spokesman said.

All other Boca Raton operations, including PS/2 development and marketing support, will remain situated where they are now. The company said it is also moving its PS/2 Model 25 and 30 development from its Austin, Texas, location to Boca Raton.

IBM has been trimming back its Boca Raton complex during recent years after squabbling with Florida over that state's unitary tax policies, which tax a company on multinational income and not just monies earned in the state.

IBM said, however, that the redeployment will not adversely affect PS/2 production. "We'll have the potential to have one plant exceed the output of two, so we may actually increase production," an IBM spokesman said. He did not elaborate on how the company intends to achieve those manufacturing efficiencies.

The game plan

Other key elements of the plan include the following:

- The manufacture of data storage products will be moved from Tucson, Ariz., to plants in San Jose, Calif., Charlotte, N.C., and Poughkeepsie, N.Y. The Tucson development laboratory will remain in Arizona.
- Assembly plants in Charlotte and Austin will take on some of the work of the Toronto plant, which will concentrate increasingly on programming development. The manufacture of memory cards and power systems at the Toronto sites remains unchanged.
- IBM's Corporate, U.S. Marketing & Services Group and Americas Group headquarters staffs will be cut by an undisclosed amount.

The company said it expects the benefit in reported earnings to offset the estimated cost of consolidation, which will be included in second-quarter results.

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MSA coveted

FROM PAGE 1

sociates over the $700 million annual revenue mark in its 1988 fiscal year.

The acquisition of MSA, with revenue of $258.5 million in 1987, would create the software industry's first billion-dollar vendor and immediately establish Computer Associates as a major force in the applications business. But users and analysts expressed skepticism about a clash of corporate cultures if the marriage were to be consummated.

"My first reaction was, 'Oh God, I hope it doesn't happen,' " said Peter Ostergard, director of systems planning and development at A. H. Robins Co. in Richmond, Va. "Our service from Computer Associates has not been that responsive, and we're pleased with our MSA support. With a company growing that big by acquisition, sooner or later you're not going to get the support because they've stretched themselves too thin."

MSA revealed the offer at its annual meeting June 27 and informed shareholders that its board had rejected the bid and refused to negotiate with the suitor. MSA adjourned the meeting until July 12.

Analyst opinions differed on whether MSA management appeared to be holding out for a higher price or was firm in its desire to remain independent and guard against Computer Associates' reputation for post-acquisition job-cutting at the companies it has bought. Charles Federman, a partner at acquisition specialist Broadview Associates in Fort Lee, N.J., noted that MSA is still very much in the image of its high-profile chairman, John P. Imlay Jr.

"MSA is a proud organization, spiritually controlled by Imlay and [President William] Graves," Federman said. "Although a deal like this could be highly profitable, it's not the way Imlay wants to go out."

Federman predicted that either MSA would remain independent or would seek a suitor of its own choosing, possibly a regional Bell holding company. MSA has retained Baltimore investment bankers Alex Brown & Sons, Inc. as its financial adviser in the situation. MSA executives refused to comment on the company's intentions.

Buy-out ahead?

Dennis Vohs, former president of MSA's manufacturing division who resigned earlier this year, predicted MSA eventually will be bought, but for a price of $17 to $22 per share. He said a leveraged buy-out by management is also possible.

"It would be very unfavorable for shareholders if something didn't happen," said Vohs, who recently cofounded VST Associates, a Digital Equipment Corp. software developer. "I'm sure a lot of people other than Computer Associates are now looking at the company."

Fisher declined comment on specific plans for MSA after an acquisition, but Computer Associates, known for its lean-and-mean approach to cost structure, can be expected to find areas ripe for trimming at MSA.

"Clearly, the record of Computer Associates has been one of buying firms and cutting costs dramatically, and this wouldn't be any different," said Charlotte Walker, a software analyst at County Securities USA. "They would retain a good portion of R&D and sales but cut a lot of administration."

MSA stock, which had been trading in the $7 to $8 range, soared 50% to $11.50 last Tuesday after the offer was made public. After slipping ⅛ of a point Wednesday, it jumped another ⅞ of a point in heavy trading Thursday to close at $12.25.

Alloy layoffs hit 25%

FRAMINGHAM, Mass. — Microcomputer storage device maker Alloy Computer Products, Inc. announced a major work force reduction last week due to a significant slowdown in sales during the quarter ended last Thursday.

Alloy said it laid off 85 people, or 25% of its domestic work force. The action was taken to lower the company's break-even point. Alloy said it expects to report a significant loss for the quarter ended June 30 because of much slower sales.

At the same time, Alloy is moving most of its manufacturing operations to South Korea, reducing its need for production employees in the U.S.

The company also said it will phase out some of the older, slower selling products in its line of peripherals.

In its quarter ended March 30, Alloy's profit plummeted to $53,000 from $785,000 in the year-earlier period as sales rose only 3% to $11.2 million. Sales have been even more sluggish in the quarter ended last week, which will result in the major loss.

The quarter also saw the resignation of President and Chief Operating Officer Joseph R. Saliba in May. Last week, Paul Pedevillano was promoted from chief financial officer to chief operating officer.

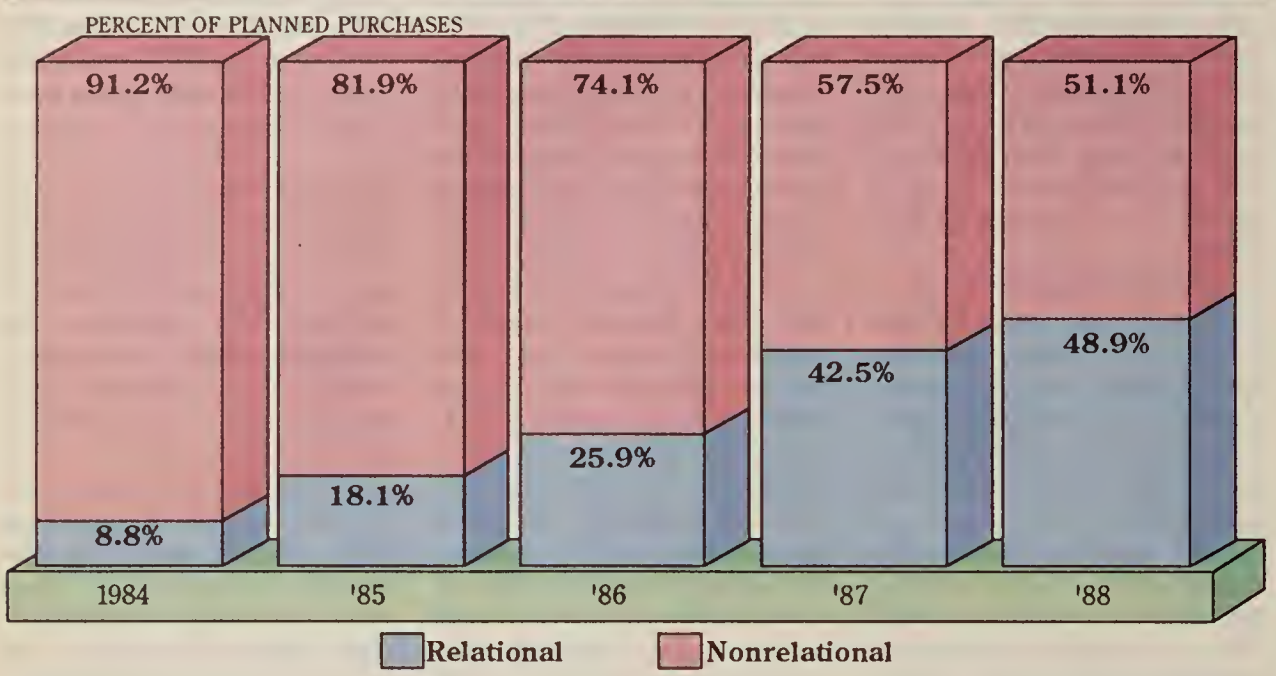
Richard Gorgens, Alloy's founder and chief executive officer, had assumed the president's position.

CLINTON WILDER

TRENDS

DBMS

Nonrelational systems are losing share to relational DBMS



Relational data base systems, which got their start as small, easy-to-use systems for researchers and engineers on mid-range machines, have almost gained the upper hand on IBM mainframes.

In a survey of buying intentions earlier this year, Focus Research Systems, Inc. found that 48.9% of the respondents said they plan to buy a relational system instead of a traditional inverted file, hierarchical or networked system.

The turnabout has come with an extremely limited range of relational products available for the mainframe. The IBM offerings — DB2, which runs under the MVS operating system, and SQL/DS, which runs under both VM and DOS/VSE — are obviously big benefactors of the trend. SQL/DS was introduced before DB2 and tends to be used at more smaller sites than does DB2, giving it a higher total of licenses issued so far.

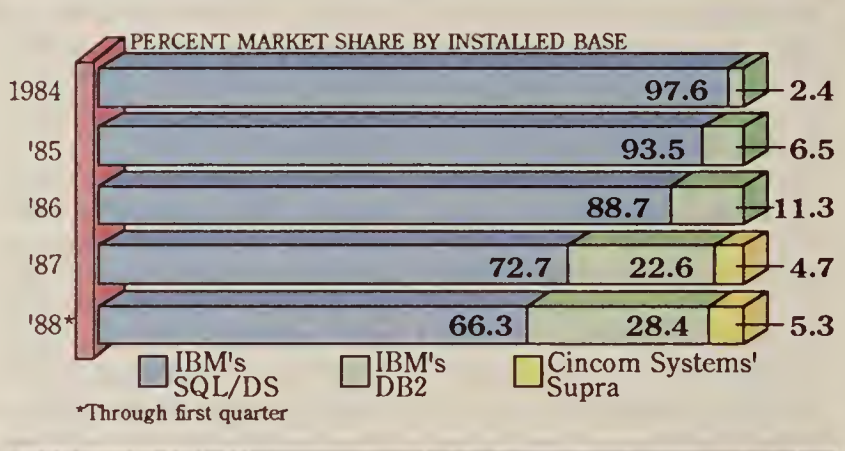
In addition, Cincom Systems, Inc.'s Supra has gotten a foot in the door and offers the advantage of running under all three operating systems.

Two mid-range suppliers, Oracle Corp. and Relational Technology, Inc., offer their products on the mainframe but do not show up yet as a significant presence in user surveys.

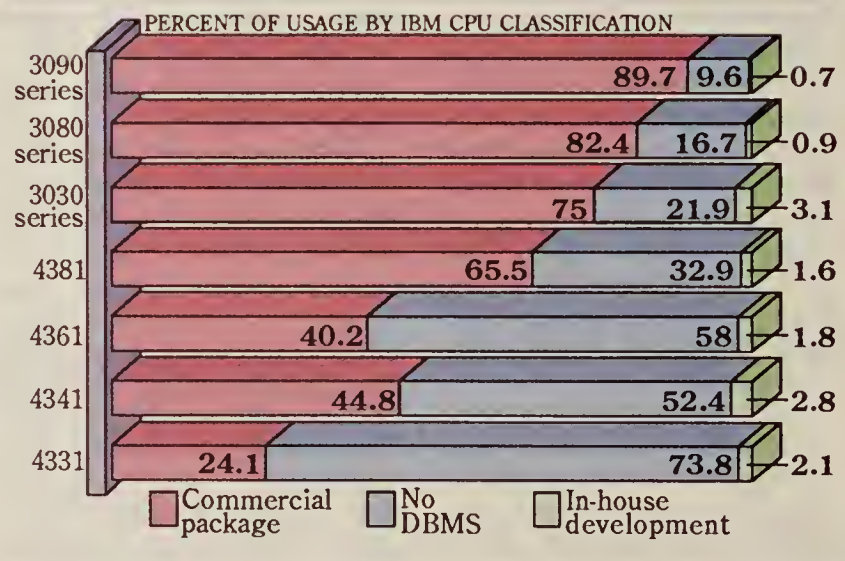
The almost 90% use of data base management systems on IBM's largest mainframes, the 3090 series, illustrates the tilt toward large CPUs among the total DBMS user community. That fact shows how powerful mainframes have evolved into central repositories of data at large corporations.

CHARLES BABCOCK

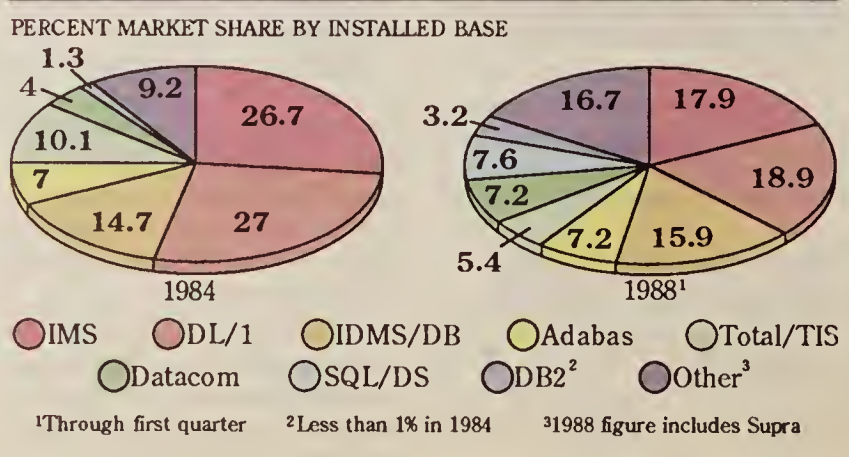
SQL/DS share shrinks



DBMS predominant on larger machines



Relational systems climbing up ranks



[1]Through first quarter [2]Less than 1% in 1984 [3]1988 figure includes Supra

INFORMATION PROVIDED BY FOCUS RESEARCH SYSTEMS, INC.

INSIDE LINES

A look at what's ahead. IBM's Imageplus document management system, introduced last week, is intended for the AS/400 and 370-architecture mainframes capable of handling the MVS/ESA operating system. But what about 370-architecture systems not capable of ESA, such as the 9370? "Our intent is to eventually make the 9370 an ESA processor," said Carl Conti, IBM senior vice-president and general manager of the Enterprise Systems Division.

Breaking the silence. Data General plans to add multiprocessing for up to four processors at the high end of its product line in the coming months, sources indicated. The move is seen as a direct counter to DEC's 8800 line.

Golden fleece proves elusive? Rumors that DEC had killed its so-called "Argonaut" development program were flying last week. Argonaut, which was expected in 1989, would have been a successor to the VAX 8700, the CPU that is the building block of the 8800, or Polar Star, series. One source said Argonaut would have been only twice as powerful as the 8700, an insufficient technological leap.

Getting punchy. Almost as fast as heavyweight champ Mike Tyson knocked out challenger Michael Spinks last Monday night, Mips Computer Systems made the bout a part of its corporate image. Before his presentation to securities analysts last Wednesday in New York, Mips Chief Executive Officer Bob Miller showed a videotape of the 91-second fight. The analogy was what you'd expect: "Iron Mike" Tyson was Mips and the quickly flattened Spinks was everyone else.

Covia and Sybase, sitting in a tree? According to a Sybase source, Covia, a United Airlines spin-off, will standardize on the Sybase SQL Server, an unshipped product jointly marketed by Microsoft, Sybase and Ashton-Tate. In fact, the forward-thinking Covia may end up reselling the SQL Server based on its recent agreement to become a Microsoft value-added reseller. The news may spell trouble for IBM's OS/2 Extended Edition, which Covia had been closely evaluating, but apparently is not blessing as a company standard.

And now, for something completely different. Breaking with the tradition most micro software vendors have established, IBM plans to ship its OS/2 Extended Edition on time this month. IBM has already created the master disks, and now it is up to manufacturing. Although the product will ship this month, all pipelines will reportedly not be full until August.

The FUD factor. What was the real reason IBM notified reduced instruction set computing system makers that they may have to pay royalties on IBM's patents? One observer, Rich Edwards, a technology analyst at Robertson Colman & Stephens, speculated that IBM is specifically hoping to tweak Hewlett-Packard with the RISC royalties. Joel Birnbaum, who is now at HP, was one of RISC's original developers in the 1970s at IBM. The IBM RISC project that Birnbaum and others worked on never came to market, and Birnbaum went on to pioneer HP's RISC-based Spectrum series.

Clinging to those apron strings. The first World Congress on Computing (WCC), held in Chicago in late March, was intended to feed from the older Interface networking conference before being sent off on its own in 1989. But The Interface Group has rethought its plans and says that WCC — successor to the bad-luck National Computer Conference — will run with Interface next year in New York during the second week of March.

Let's see, if Uccel with $141 million in revenue was worth $800 million to Computer Associates a year ago, but MSA with $258 million in revenue is valued by the Long Island giant at only $191 million, is it time for old-timers to get out while the getting is good? If you're aware of software pioneers ready to head down to Florida, call the hotline at 800-343-6474 or 617-879-0700 and make sure News Editor Pete Bartolik tips off the rest of the world.

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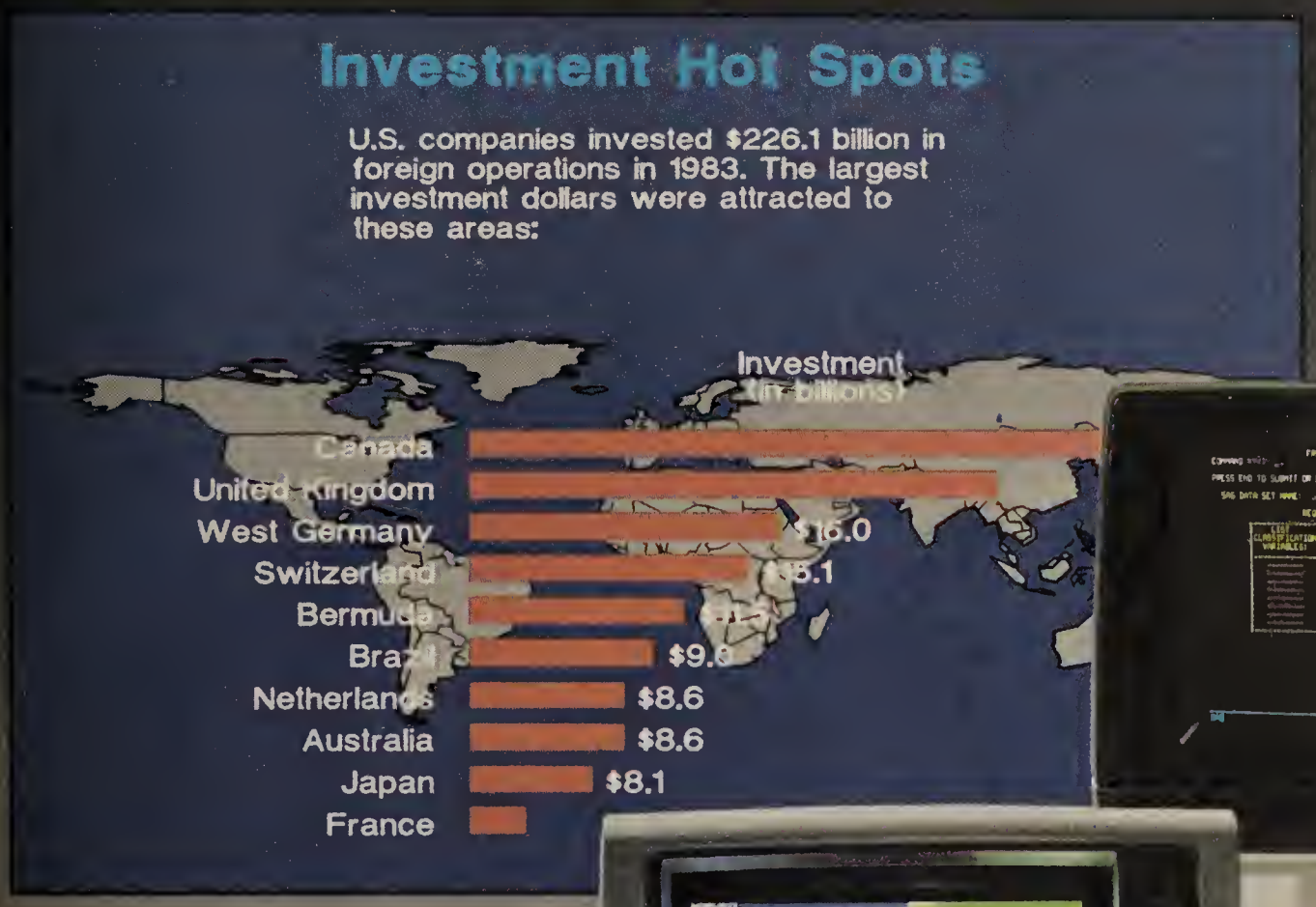

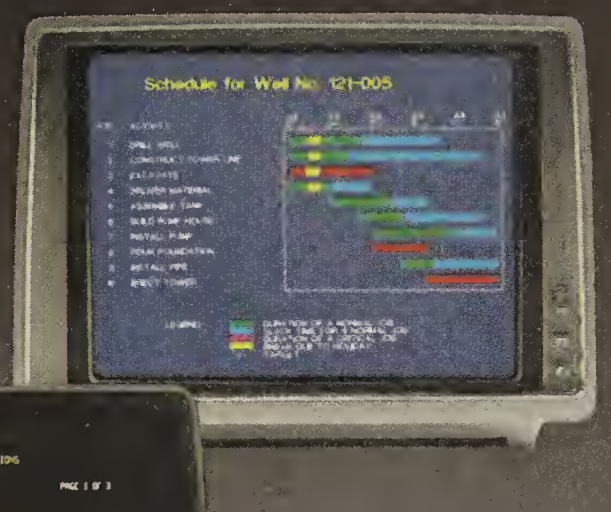

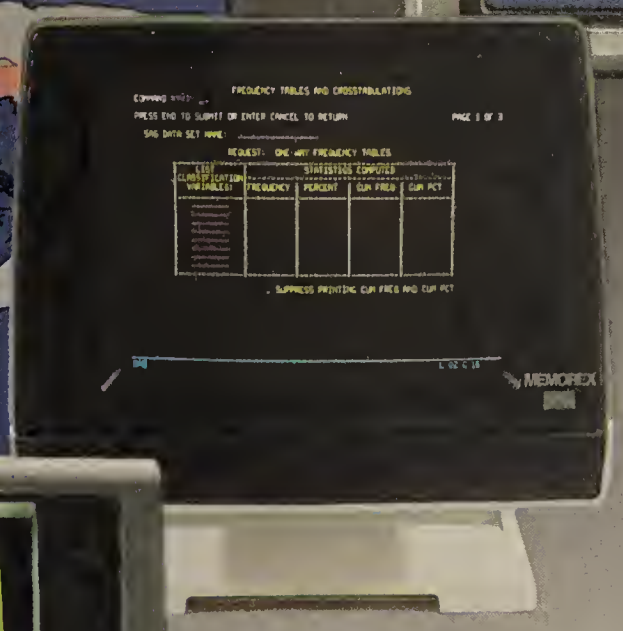

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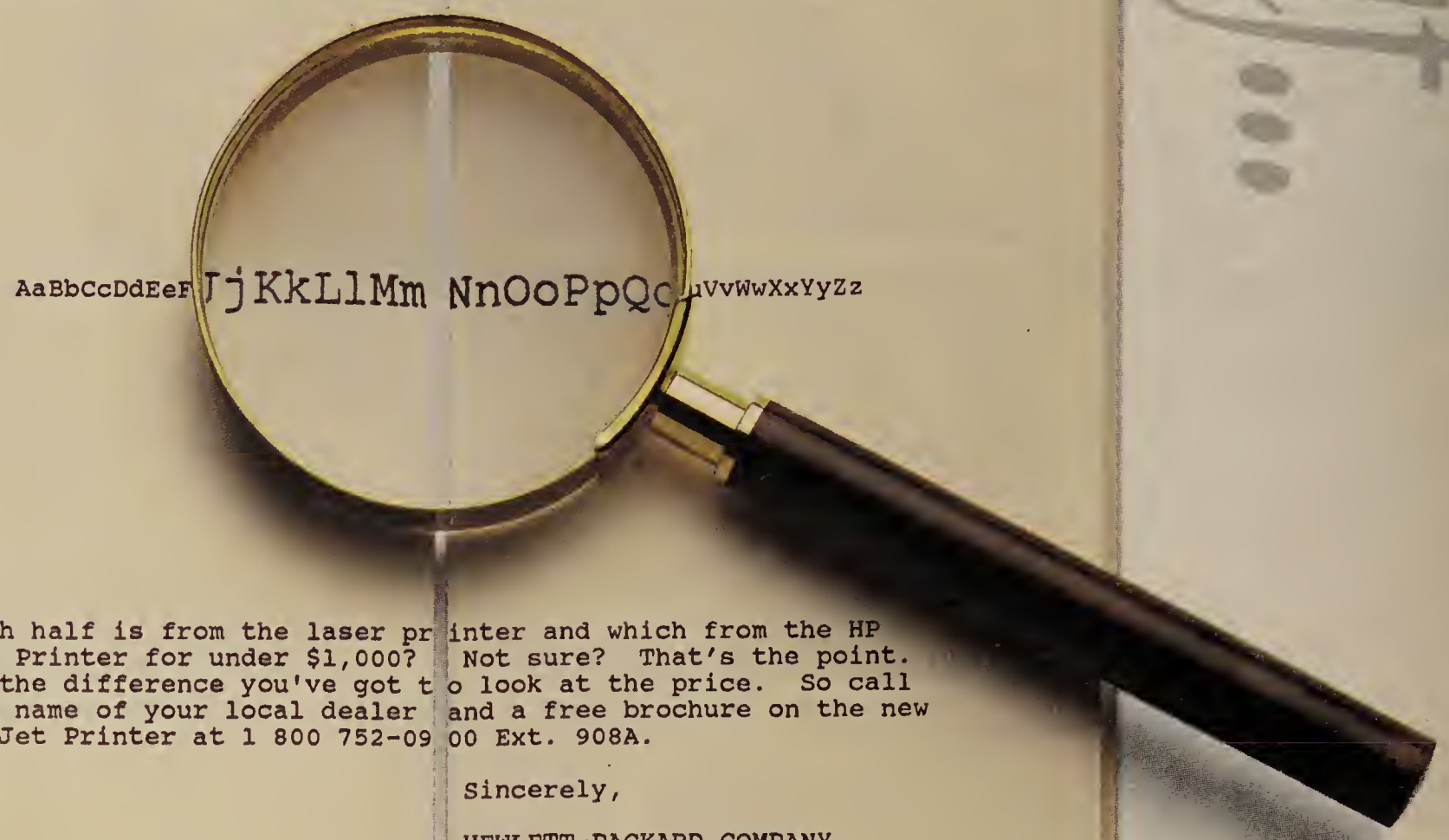

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